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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 15 Cents

VOLUME 73, No. 24 | 535 North Dearborn Street, CHICAGO, ILL. | DECEMBER 13, 1919

CONTENTS AND DIGEST

Reconstructive Surgery of the Hand. John C. Wilson, M.D., and Clarence H. Hyman, M.D., Cleveland.....1811

Perplexing nature of the problems of hand injuries. Injuries to soft parts. Tendon injuries. Fractures of the carpus and the metacarpal bones. Joint involvement. Amputations. Time of operation. Report of cases.

The Gastric Hypermotility Associated with Diseases of the Gallbladder, Duodenum and Appendix: A Clinical and Experimental Study. George David Stewart, M.D., and William Howard Barber, M.D., New York 1817

Organs included with stomach in diagnoses. Means of studying the reflex activity of the stomach. Sources of error. Experimental work and results. Impossibility of absolutely excluding pathologic conditions in the reflex type of individual.

Discussed by Drs. Bassler, Mills, Palefski, Hayes, Friedman and Barber.

Blood Type Classifications, with a Slight Modification of Technic: Report of the Results of More than a Thousand Classifications. George R. Moffitt, M.D.; George F. Klugh, M.D., and Chester E. Shepard, Fort McPherson, Ga. 1821

Method of classification. Significance of agglutination.

Notes on Digitalis Medication. Harold E. B. Pardee, M.D., New York..1822

The rate of disappearance of digitalis from the body. Sign for discontinuing drug. Bearing of results of investigation on administration of digitalis. The therapeutic dose of tincture of digitalis. Average period of administration. Three important points. Importance of a knowledge of the variability of the indicated dose.

Factors Making for a Low Venereal Record in the American Expeditionary Forces. P. M. Ashburn, M.D., Washington, D.C. 1824

The venereal disease rate. Causes for the low incidence rate. Influences that make for chastity. Frequency of exposure in relation to prevalence of venereal diseases. Effect of opportunities for contact. Bad influence of leaves on venereal rate. Influences that diminished dangers. Venereal prophylaxis. Punishment as a factor in prevention.

Studies on Hyperthyroidism. Fred M. Smith, M.D., Chicago.....1828

Study of thirty cases suggesting hyperthyroidism. Method of study. General histories and symptoms. Physical findings. Diagnosis. Disposition of patients. Hyperthyroidism and irritable heart.

Prognosis of Specific Aortitis. William D. Reid, M.D., Boston.....1832

Records of syphilitic aortitis in the Massachusetts General Hospital. Difficulties of studying records. The material studied. Results.

A Case of Raynaud's Disease Associated with Scleroderma. Frederick P. Moersch, M.D., Ann Arbor, Mich. 1835

Obscurity of the etiology of the disease. Report of case suggesting exposure as an accessory factor.

(Continued on next page)

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized on June 14, 1918.

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SAUNDERS, *Publishers* See Pages 3, 4, 5

CONTENTS AND DIGEST—Concluded

Autotransplantation of the Kidney. Carleton Dederer, M.D., Bay City, Mich. 1836

Report of experimental study of the operation. Extract from protocol.

Dermatitis Factitia Complicating Hysterical Paralysis. Samuel Ayres, Jr., M.D., Boston 1838

Report of case. Neurotic disposition of patient. Probability that similar cases are not rare. Lessons to be drawn.

CLINICAL NOTES, ETC.

Emphysema of the Cecum: Report of a Case. Elmer D. Twyman, M.D., Kansas City, Mo.....1840

A Home-Made Orthopedic Table. Lloyd M. Bergen, M.D., Highland Park, Ill. 1841

Serous Meningitis Following Injection of Antitetanic Serum. Oscar Berghausen, M.D., Cincinnati....1841

Foreign Body in Rectum. Edward A. Diggins, M.D., San Francisco...1842

A Case of Bilateral Congenital Fusion of the Radius and Ulna. Julius Kaufman, M.D., Brooklyn....1842

THERAPEUTICS

Use and Abuse of Cathartics (Continued)....1843

NEW AND NONOFFICIAL REMEDIES

Description of Articles Accepted by the Council on Pharmacy and Chemistry 1843

Hoyt's Gluten Special Flour.

EDITORIALS

Diet and Intestinal Bacteria....1844

Recent investigations on the effect of diet on the intestinal flora.

Botulism: I....1844

A praiseworthy attempt to discover the underlying danger and the best means of combating it.

Securing Officers for the Army Medical Corps....1845

An advantageous method of recruiting.

CURRENT COMMENT

The Fate of Proteins Injected Into the Circulation....1846

Evidence of the futility of such procedures.

The Prevalence of Syphilis....1846

Statistics based on a study of hospital patients.

ASSOCIATION NEWS 1847

The New Orleans Session.

GOVERNMENT SERVICES 1847

Medical Officers, U. S. Navy, Relieved from Active Duty.

MEDICAL NEWS

CALIFORNIA: Joint Meeting — Soldiers Honored 1847

DISTRICT OF COLUMBIA: Changes in Faculty — Personal — Testimonial to Dr. Kober ..1847

ILLINOIS: Personal — Chiropractor Convicted. Chicago: Election of Officers—Personal.1847

LOUISIANA: War Service Physicians Organize — Personal — Case of Yellow Fever in New Orleans—Bubonic Plague 1847

MARYLAND: Personal — Fire at Johns Hopkins 1848

NEW YORK: Addition to Hospital — Personal. New York City: Academy Election 1848

OHIO: Library Given Medical Society — Personal 1848

PENNSYLVANIA: Personal — Tuberculosis Night — Jefferson Establishes a Dietetic Center. Philadelphia: Society Honors Service Men — Hatfield Lectures — Tuberculosis Days 1848

CANADA: Personal—Public Health News.1848

GENERAL: Personal — Biologists to Meet — New York Medical Weeklies Resume Publication — Meeting of the Child Hygiene Association — American Red Cross Wishes Fifty Physicians....1849

FOREIGN: Centennial of the French Academie de Médecine—Harveian Festival 1849

LATIN AMERICA: Red Cross Commissioner to West Indies 1849

FOREIGN CORRESPONDENCE 1849

London.

Paris.

MARRIAGES 1850

DEATHS 1851

CORRESPONDENCE 1852

"Defects in the Teaching of Pathology, and the Lay Professor."

"Intensive" Antisyphilitic Treatment.

QUERIES AND MINOR NOTES 1852

Polymorphonuclears in Malaria.

Lubricating Jelly.

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE

Coming Examinations — Illinois March Examination 1853

BOOK NOTICES 1853

MEDICOLEGAL

Inability to Take Treatments Contracted for 1854

CURRENT MEDICAL LITERATURE

American Medical Journals

Specific Treatment of Typhoid—What Is Influenza?—Transposition of Viscera, Tertiary Syphilis—Immunity of Coloradoans to Pulmonary Tuberculosis....1854

Active Mobilization in Joint Conditions—Meningococcus Cerebrospinal Meningitis — Blood Sugar Tolerance in Cancer—Infection by a Fusospirillary Organism—Occurrence of Bacillus Botulinus in Nature—Pathology of Human and Experimental Poliomyelitis—Differential Diagnosis of Hyperthyroidism 1855

Operative Methods in Empyema—Atropin in Pylorospasm—Colon Bacillus Pyonephrosis in Early Infancy 1856

Foreign Medical Journals

Injection Medium for Roentgenography of Fistula—Cardinal Principles in Cardiologic Practice — Causation and Treatment of Rickets—Herpes Zoster of Glossopharyngeal Nerve—Gynecomastia in Young Boys—Pathologic Changes in Kidneys Due to Intravenous Injection of Alcohol—Pyoktanin in Ophthalmology 1856

Weil-Felix Reaction in Mild Epidemic of Typhus—Weil-Felix Typhus Test—Specific Reactions of Pfeiffer's Bacillus—Special Degenerations Produced in Rabbits Immunized with Pancreatic Ferments — Giant Gastric Ulcers — Alimentary Anaphylaxis and Asthma—Biologic Diagnosis of Pregnancy 1857

Welfare Work for Mothers—Tetanus During 1918—Bovine Tuberculosis—Acute Appendicitis—Syphilitic Vesicorectal Fistula—Neuropathic Vomiting—Trauma of the Wrist—Perinephric Cysts—Jaundice During Arsphenamin Treatment—Control of Arsphenamin Treatment—Nephritis of Intestinal Origin 1858

Atony of the Esophagus—Heliotherapy of Cutaneous Tuberculosis — "La Médecine"—Pseudarthrosis—Acute Rebellious Dysentery —Cancer of the Colon—Cancer of the Rectum—Ether in Infections....1859

Cerebellar Dysarthria — Physiology of the Greater Omentum—Trauma of the Chest and Pulmonary Tuberculosis — Negative Scrapings with Uterine Cancer—Dangers of Radical Treatment of Frontal Sinusitis—Tardy Tetanus 1860

Differentiation of Fats by Histochemistry—The Hard Boiled Egg Test Breakfast—Hematoma in Pancreas Cyst—Is Foot and Mouth Disease Transmissible to Man?—Dissociated Paralysis of Peripheral Nerves After War Wounds—Nervous Lesions from Influenza — Influenza — Superposed-Hands Palpation of the Abdomen—Cervical Ribs—Diagnosis of Leukemia—Enterocolitis from Inherited Syphilis 1861

The Blood Changes in High Altitudes—Esophagoscopy with Stenosis — Pneumobacillus Septicemia—Congenital Obstruction of the Posterior Nares—Angina Pectoris—The Physician and His Duties to Society—Tests 1862

TONICS AND SEDATIVES—BOOKS RECEIVED....Adv. Page 20

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 73, No. 24 CHICAGO, ILLINOIS DECEMBER 13, 1919

RECONSTRUCTIVE SURGERY OF THE HAND*

JOHN C. WILSON, M.D.
LOS ANGELES
AND
CLARENCE H. HYMAN, M.D.
CLEVELAND

One of the most perplexing problems that were presented to the orthopedic surgeon during the war was the restoration of function in injuries of the hand. Each case presented many difficulties rather than a single problem. Complete restoration of function, or as nearly complete restoration as possible, is essential before the full duty of the surgeon to the soldier is fulfilled. An all too frequent mistake has been to send the man with imperfect function of the hand to his home to work out motion in the wrist or some of the small joints of the hand by himself. Many of these men live in remote districts and will never come under medical supervision again.

It has not seemed practicable to divide this subject in any way; therefore an attempt will be made to paint the picture as it actually presents itself. Injuries of the wrist joint will be considered in a general way because of the necessity of securing the proper relation of the hand to the forearm.

INJURIES TO SOFT PARTS

Dorsal Surface of the Hand.—These wounds were found to be due for the most part to machine gun bullets or fragments of shell casing, and as a general rule they were of the oblique type. The dorsal surface of the hand is exposed to projectiles to a greater extent than the palm because of the position assumed when it is hanging by the side or when it is active. Cicatricial tissue follows these wounds because of the presence of infection in all instances. The scars are unsightly, often tender and easily abraded, but they interfere to a lesser degree than does the presence of scar tissue in the palm of the hand.

Frequently, cicatrices of the dorsum of the hand may be excised and the skin freed sufficiently to allow closure of the defect due to the removal of the scar tissue. In case this procedure is followed, care must be taken to preserve the circulation in all parts of the skin flaps, for, although an occasional small skin slough has occurred, this method of skin repair has proved satisfactory.

Palmar Surface of the Hand.—Extensive scarring of the palm of the hand may lead to contractures of the thumb, as in Case 10 (Figs. 1, 2 and 3). The skin of the palm cannot readily be mobilized; hence excision of an appreciable amount of scar tissue leaves defects that must be repaired by skin and fat from other parts of the body. This is best accomplished by transplantation of a section of skin, fat and superficial fascia from the abdominal wall by means of the method described by Babcock as illustrated in Figures 4 and 5. The area of scar tissue is completely excised in order that the blood supply between the flap and bed may be readily established. A flap of skin, superficial fascia, and fat is dissected free from the abdominal wall, except for the pedicular attachment, which should if possible be the superior portion of the flap. Great care should be taken to make the flap fit the bed accurately. It is then sutured along the free border to the skin margins of the bed, care being exercised not to constrict the pedicle of the transplant. The hand is then put up in a comfortable dressing for a period of about nine days. During this time the abdominal flap will acquire sufficient blood supply to allow the pedicle to be severed. In all probability the union between the sutured flap and the skin margin will be complete; but it may be possible that one of the corners of the transplant will show signs of necrosis, and a definite line of demarcation may be present. In case this has occurred, the necrotic area may be trimmed away and the vascular edge of the transplant approximated to the skin margin, usually resulting in prompt union. By this means a serviceable skin surface is provided in place of a tender cicatrix, and a suitable bed is secured for the tendons.

TENDON INJURIES

Few of the projectiles passed completely through the hand, and as a result the greater number of these cases were injuries only of the extensor tendons. In twenty-five cases the extensor tendons were involved, and in three cases only the flexor tendons; in four cases both flexor and extensor tendons had been subjected to injury. In the last group, the damage was done by a projectile entering on the dorsal surface of the hand and passing out through the palm.

Three distinct types of cases with tendon involvement may be described, namely, complete division, partial division and adherent tendons.

Complete Division.—When complete division had taken place, it was not uncommon to find the severed ends embedded deeply in callous or scar tissue in the

*From U. S. Army General Hospital, No. 6, Fort McPherson, Ga., at which Dr. Wilson was chief of the orthopedic service and Dr. Hyman orthopedic surgeon.

* Because of lack of space, this article is abbreviated by the omission of many case reports. The complete article will appear in the reprints, a copy of which may be obtained on application to the authors.

hand in a plane corresponding to the course of the projectile. By careful dissection the tendon could be freed and often exhibited very little destruction, a fact that proved of great value in considering the repair.

Partial Division.—In the small number of cases in which the tendons were partially divided, an over-

Fig. 1 (Case 10).—Perforating gunshot wound of the hand with large cicatrix in the palm. The flexor tendons of the thumb and the first two fingers have been divided. Note the adduction deformity of the thumb.

production of fibrous tissue along the remnants of the tendon sheath and beneath the skin prevented return of function. Prior to operation it was impossible to differentiate this group.

Adherent Tendons.—Tendon adhesions were due to lacerated wounds in the long axis of the hand, followed by infection. The differentiation between this type of case and complete division presented no great difficulty for the reason that attempted active extension of the digits showed distinct evidence of force being transmitted along the tendon course.

For the sake of classification, these three groups have been described in detail; but one must bear in mind the fact that rarely was a single one of these conditions present at one time.

Treatment of Tendon Injuries.—That a moderate range of joint motion must precede tendon function is an axiom well worth remembering. It is useless to expect a repaired or liberated tendon to combat an

Fig. 2 (Case 10).—Cicatrix has been excised, tendons repaired, and transplant is in place. Skin edges are not entirely healed.

ankylosed joint; therefore in describing the treatment of tendon injuries we shall assume the range of motion of the joints of the hand to be moderately free.

Complete Division.—When tendon division had taken place, tendon repair or tendon transplantation was, of course, considered. By careful dissection it was possible at times to separate enough of the tendon from the cicatricial tissue to allow end to end repair. When such gaps were present that end to end repair was impossible, the extensor indicis and extensor minimi digiti were available for transplantation as extensors to any of the digits except the first. The tendon of the extensor carpi radialis brevior may be transplanted into the distal tendinous portion of the extensor ossis metacarpi pollicis or extensors longus or brevis pollicis, as in Case 38. In case of ankylosis of the wrist, the extensors carpi radialis longior and brevior, the extensor carpi ulnaris, and the flexors carpi radialis and ulnaris may be utilized.

Partial Division.—When partial division had taken place, the rational procedure was followed. The tendons were liberated from the bed of scar tissue and the divided portion sutured. In many cases of complete or partial division, adjacent tendons were found to be bound down to the metacarpals or the interossei by dense scar tissue.

Adherent Tendons.—The problem of tendon adhesions was met by tendon liberation and early active motion, which should be understood to be due to active contraction of muscles which will produce motion of the affected tendons, or by tendon liberation and an

Fig. 3 (Case 10).—Five weeks after operation. Transplant of skin fat and fascia healed. Note the abduction of the thumb.

autogenous fat and fascia transplant. Fat and fascia were transplanted in eight cases, infection following in one case within forty-eight hours. In four cases, the skin remained healed for fourteen days, when the skin margins separated slightly, liberating a considerable amount of oily fluid, the result of fat decomposition. In two cases, the wounds healed promptly after the discharge, and in the two remaining, infection followed and the transplants were extruded, leading of course to absolute failure. In three cases, satisfactory return of tendon function followed. If a fat and fascia transplant is used, the difficulties of skin closure are multiplied several fold. In view of the skin defects that were dealt with, it is possible that conclusions should not be drawn from these cases. However, the fact remains that the best results were obtained without fat and fascia transplants, in cases in which early active motion was instituted, often within a few hours after operation.

FRACTURES OF THE CARPUS

Fractures of the carpus are considered only so far as they are factors in determining the relationship of the hand to the forearm. In several instances, fractures of the scaphoid and semilunar bones with dis-

placement of the proximal fragment were found to limit dorsal flexion by mechanical blocking, and as a result the muscle balance of the hand was destroyed (Cases 7 and 12). This lesion was only a component part of the picture, but necessitated consideration before perfect functional restoration could be gained. Even though a considerable range of motion was present in an arc of palmar flexion, measures to bring the hand into a position of dorsal flexion with somewhat of a sacrifice, if necessary, of the arc of motion seemed advisable for the sake of restoration of the normal muscle balance.

When the carpal bones had been extensively destroyed, radial deflection of the hand was found to occur in conjunction with palmar flexion. The articular surfaces of the radius and ulna were often destroyed by the injury or the associated infection. Motion in the position of deformity was painful, and the deformities showed great tendency to recur after correction by mechanical measures.

The best results were obtained by carporadio-ulnar resection of bone, sufficient to allow correction of the deviation of the hand and to allow the hand to be set at an angle of 40 degrees of dorsal flexion, with fixation in this position until firm bony ankylosis had occurred, care being taken to preserve tendon and joint function during this period.

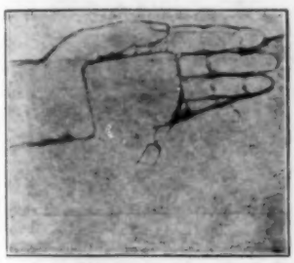

Fig. 4 (schematic). — Single pedicle abdominal flap in position, vascularized and ready to be cut free.

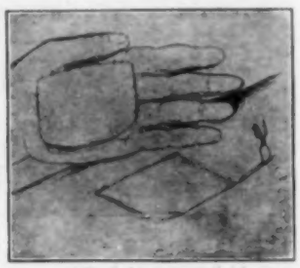

Fig. 5 (schematic).—Flap liberated with method of abdominal skin closure. Incisions along dotted lines allow skin margins to be approximated.

FRACTURES OF THE METACARPAL BONES

Fractures of the metacarpal bones calling for special consideration by the orthopedic surgeon are of two varieties: those with nonunion, and those with union in such a position as to disturb the alinement of their respective joint surfaces.

Nonunion is rarely seen when approximation of the fragments has occurred. The lack of union is generally found to be due to defects in the shafts, and may be associated with destruction of either of the articulating extremities.

The loss of proximal metacarpal fixation is a troublesome factor, especially if associated with ankylosis of the metacarpophalangeal joints, because of the false point of motion. An attempt to secure proximal metacarpal fixation is advisable, either by implantation of the metacarpal shafts into the carpus, or, if the defect is too great, by means of an autogenous bone transplant that will bridge the gap between the metacarpal and the carpus in juxtaposition. This having been accomplished, the proximal arm of the lever becomes fixed, and the problem of restoration of motion in the metacarpophalangeal joint may be attacked.

Ununited fractures of the metacarpal bones disturb the function of the metacarpophalangeal joints because the proximal end of the distal fragment becomes tilted forward, throwing the articulating surface backward, changing the arc of flexion, and destroying the muscle balance of the finger in question. At operation the fragments may be properly approximated and the defect in the shaft repaired by a carefully cut tibial

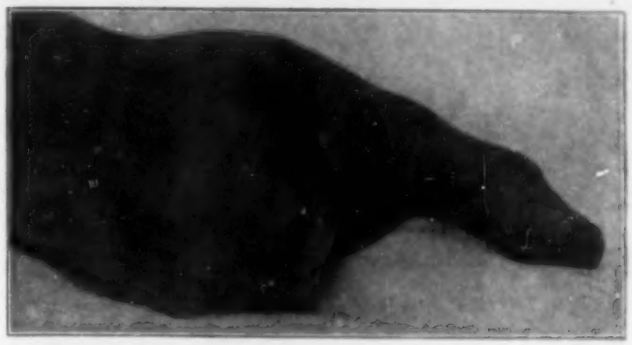

Fig. 6 (Case 16).—Amputation of four fingers through distal part of metacarpal shafts, unhealed; greatest tenderness over the only available point of apposition for the thumb.

transplant or by exogenous bone. In two cases of repair by autogenous bone, the results were most gratifying, while exogenous bone (beef) was used in one case with an unsatisfactory result.

Destruction of the distal metacarpal articulating surfaces presents greater difficulties. The management of this condition depends on the number of

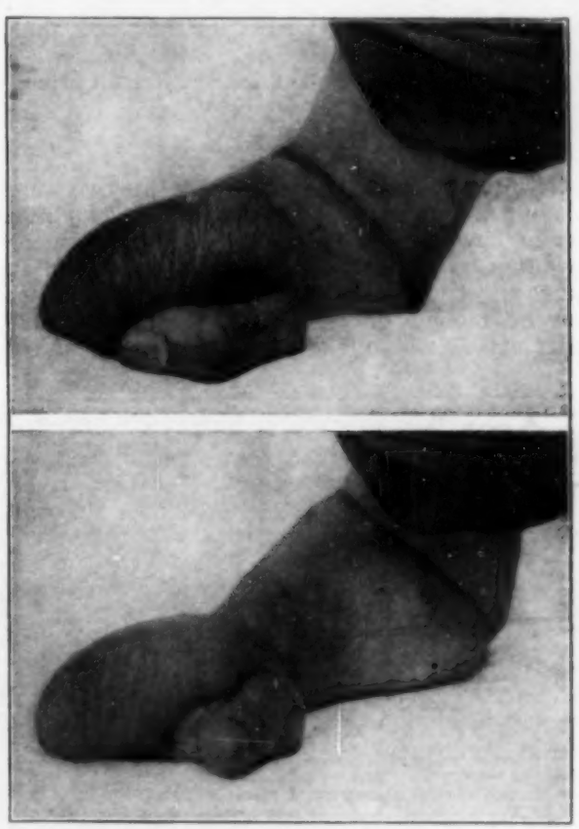

Fig. 7 (Case 16).—Appearance of hand two months after operation. Unhealed cicatrix has been excised, and skin fat and fascia transplant from the abdominal wall has healed, resulting in a good functional result. A prosthesis was readily fitted to this stump to be worn for esthetic effect when desired.

fingers involved; and if only one, the extent of the process will determine the treatment. A point of

approximation for the thumb should be preserved, and if need be, an ankylosed metacarpophalangeal joint may be considered to obtain this end. Should the

Fig. 8 (Case 24).—Amputation of index finger; flail third finger due to resection of metacarpal with extensive scar tissue formation following gunshot wound.

function of the remaining digits be undisturbed and one metacarpal be extensively involved, amputation of the digit with resection of the fragments of the metacarpal shaft will give the best result, as in Case 24.

Fractures of the metacarpal bones with union in malposition do not require special remark except that the normal relationship of the joint surfaces must be secured to insure the return of greatest function. This realinement is easily accomplished after an osteotomy at the point of election.

JOINT INVOLVEMENT

Of primary importance in reconstructive surgery of the hand is the condition of the joints; for regardless of how ingenious or how skilfully executed, an operation on tendons, failure to secure a good functional result will be certain if there is marked limitation of motion or ankylosis of the joints to be functionated. Muscular contraction is a means of

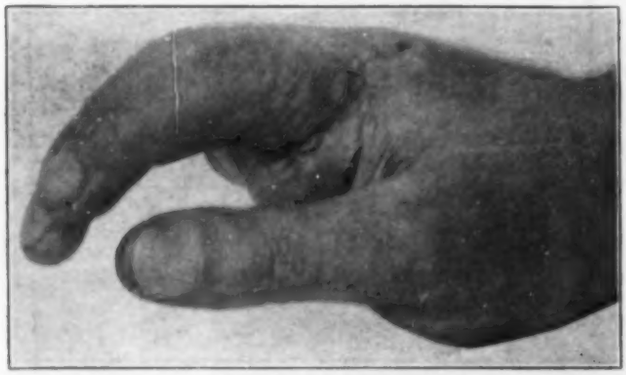

Fig. 9 (Case 24).—Appearance of hand two months after operation. Scar was excised, defect in the third metacarpal repaired by transposing the remains of the shaft of the second metacarpal and finger fixed in position of slight palmar flexion to allow approximation of the thumb. This procedure was imperative to secure a point of approximation for the thumb because of ankylosis of the fourth and fifth metacarpophalangeal joints.

producing joint motion; and if there is not already passive motion in a joint, it is a waste of time and energy, both to the patient and the surgeon, to perform a tendon operation and then expect a result. In those cases in which ankylosis or limitation of motion is expected, there are positions of election to secure the maximum degree of usefulness.

Limitation of motion in a joint may be due to extra-articular causes, usually when associated with gunshot wounds with infection, to a thickened contracted capsule, or to intra-articular causes, usually a fracture extending into the joint, or to destruction of the articular cartilage.

All injuries of the wrist joint should be treated with the wrist in a position of dorsal flexion, particularly when there is any likelihood of a resulting limitation of motion or complete ankylosis. If the wrist is in a position of palmar flexion or in a neutral position, the force of the grip is diminished because of the loss of muscle balance. The position of dorsal flexion is the position of strength. To secure this position, it is necessary to devote special attention to the splinting. Any of the ordinary cock-up splints will usually suffice if properly applied and observed. If the tendon injury is uncomplicated by joint involvement, the mere passive attitude of the hand in palmar flexion will result in a deformity that may require months of treatment to restore function.

In practically all cases of injury to the tendons of the fingers there has been a marked limitation of motion of the metacarpophalangeal joints, and the

Fig. 10 (Case 23).—Persistent hyperextension of metacarpophalangeal joint as a result of excision of scar and a posterior capsulorrhaphy.

fingers were as a rule found in a position of hyperextension. This deformity was associated with thickening and contraction of the joint capsule. Baking, massage, contrast baths and other physiotherapeutic measures commonly used seemed of very little benefit without elastic traction. A very satisfactory apparatus may be improvised such as is shown in Figures 15 and 16. The rubber tubing is attached to the fingers by adhesive plaster and then attached to heavy iron wire embedded in a molded plaster-of-Paris palmar splint that will extend to the elbow. The traction must first be made in the line of deformity. By bending the wire, the deformity can gradually be overcome and flexion of the fingers produced. In conjunction with this traction and flexion, it is important that daily massage and manipulation be given with the splint removed, with the exception of the adhesive bands attached to the fingers. Good results have been obtained more rapidly by a transverse posterior capsulorrhaphy at the time of the tendon repair. The fibrous capsule of the metacarpophalangeal joint is incised transversely, allowing the maximum of palmar flexion at this joint immediately. Massage and exercise must be used faithfully after this operation to obtain the best results.

One case of recurrent dislocation of the first carpometacarpal joint was observed in this series of cases. This was due to impacted fractures of both the trapezium and trapezoid bones of the wrist which altered

the plane of the articulating surface of the trapezium. The joint was partially stabilized by passing a heavy silk ligature through the base of the first metacarpal, and thence through the body of the trapezium. This ligature was tied with the thumb in a position of extreme extension. The result seemed most satisfactory, for at the end of four weeks the patient had recovered complete function of the first digit and had suffered no relapse at the time of departure from the hospital, several weeks later.

The limitation of motion in the interphalangeal joints caused comparatively little difficulty, as these conditions were readily amenable to physiotherapeutic measures.

AMPUTATIONS

Evidences of conservation of the structures of the hand are seen constantly. Thanks to the able surgery performed at the front, metacarpal stumps that might be of value as apposing digits have been preserved. It must be borne in mind that a functionating thumb with a point of apposition will make a useful hand, and that the artificial hand with all of the delicate mechanism has never been perfected to the degree of

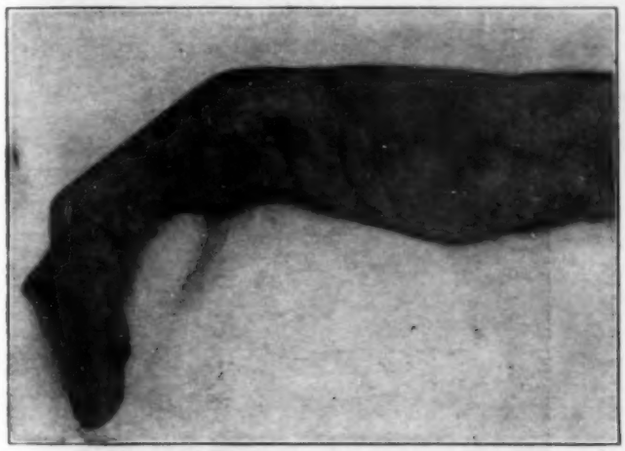

Fig. 11 (Case 23).—Limit of voluntary flexion of the finger ten days after dorsal transverse incision of the capsule of the metacarpophalangeal joint.

usefulness equal to that of apposing digits or parts of digits.

In case all fingers are amputated, the point of apposition, which will necessarily be metacarpal stumps, must be covered with integument that is not sensitive. Unfortunately, laceration of soft parts is more extensive than the resection of bone, resulting in the formation of cicatricial tissue over the osseous structures. Scar tissue is prone to crack and become abraded with the slightest trauma. This cicatricial tissue may be replaced with skin and fat by resection of the entire scar and transplantation of a pedicle of fat and fascia, after the technic illustrated in Figures 4 and 5 with the result shown in Figure 7. In this particular instance the result was most pleasing, because a tender unhealed stump of a hand was transformed into a functionating member.

The question of finger amputation is open to considerable controversy; but it seems to be agreed that in case both flexor and extensor tendons of one digit, excepting the first, are involved, amputation should be considered. Metacarpal and metacarpophalangeal joint injury with tendon involvement of only one digit, except the first, should always be treated by amputation of the digit. Metacarpal shaft destruction which may occur without tendon injury does not

Fig. 12 (Case 21).—Ankylosis of the wrist joint in a position of palmar flexion with marked disturbance of muscle balance of the flexors and extensors of the fingers and partial ankylosis of all of the small joints of the hand. This condition was not amenable to mechanical treatment.

require amputation of the digit if the distal articular surface of the metacarpal is uninvolved.

TIME OF OPERATION

The time of operation in the cases reported was earlier than has been customary. Rarely was any plastic work attempted before the wounds had been healed two months. After this period had elapsed, the area of injury was subjected to intensive mechanical irritation; and if no reaction appeared in the skin or subcutaneous tissues, pain and tenderness being absent, it was felt that the problem might be attacked surgically with impunity.

A few infections occurred, but the percentage was so low that early operation is to be encouraged in order that the soldier may be restored to usefulness as soon as possible.

Case 10.—A soldier, admitted, Dec. 26, 1918, had received a perforating gunshot wound of the palm of the hand, Oct. 27, 1918. Infection followed immediately. On admission a large irregular scar was present in the palm with a contracture

Fig. 13 (Case 21).—Eight weeks after fixation of hand in a position of dorsal flexion, with rapid return of function of the digits under therapeutic measures that were unavailing before the correction of the palmar flexion deformity.

causing an adduction deformity of the thumb and flexion of the index and middle fingers. The flexor longus pollicis tendon and the tendons of the flexors profundus and sublimus digitorum to the index and middle fingers were divided. There was a distal articular fracture of the third metacarpal. Operation, March 22, 1919, after wounds had been healed

eight weeks. The flexor tendons to the thumb, index and middle fingers were repaired and the entire mass of scar tissue excised. A transplant of skin, fascia and fat was transplanted into the palm by the two stage method. The flap was cut loose ten days later. At present, five weeks

Fig. 14 (Case 28).—Roentgenogram taken five weeks after repair of metacarpal defects by autogenous bone transplants.

following operation, the skin transplant is healed and there is distinct flexion power in the thumb, index and middle fingers. Repair of the extensor tendons is to be done later.

Case 16.—A soldier received a machine gun bullet wound of the right hand, July 28, 1918, resulting in amputation of the four fingers at the metacarpophalangeal joints. There was normal motion in the thumb but there was difficulty in apposing it to the stump, which was covered by a tender granulating surface with surrounding skin poorly nourished. Operation, Dec. 5, 1918, when the entire scar over the end of the stump was excised and a thick double pedicle skin flap from the abdomen was sutured in place. The flap was cut loose nine days later and the skin of the flap was sutured to the hand. The skin flap was entirely healed three weeks after operation; on the patient's discharge, two months later, there was a narrow linear scar encircling the transplant with a good tough pad, to which he could appose the thumb.

Case 21.—March 15, 1918, a soldier accidentally cut himself with a knife on the left palm. Infection followed which was treated by multiple dorsal incisions. When admitted, July 23, 1918, there was a bony ankylosis of the wrist in extreme palmar flexion, with ulnar deflection, and no motion in the metacarpophalangeal joints. Massage, manipulations under ether, and plaster-of-Paris wedging were tried with no improvement. Operation, Feb. 6, 1919, when wounds had been healed six months. A wedge of bone was removed from the lower end of the radius, scaphoid, and semilunar to allow the hand to be brought up into dorsal flexion. The wound healed by first intention and at present, ten weeks after operation, the wrist is in a position of 30 degrees dorsal flexion, and there is no ulnar deflection. There is also marked improvement in the range of motion of the fingers, each of which can be apposed by the thumb.

Case 23.—A soldier, admitted, Oct. 25, 1918, had been wounded, July 18, 1918, by a fragment of a shell. The thumb and first finger were amputated leaving the proximal half of the second metacarpal bone. On admission the wound was not healed. Nov. 29, 1918, the remaining part of the second metacarpal bone was removed. The wound healed, Feb. 1, 1919. Motion was limited in all of the joints of the remaining fingers. March 10, 1919, the scar was excised and manipulation allowed free motion in all of the joints except that of the third metacarpophalangeal joint. A posterior capsulorrhaphy was done at this joint allowing free motion. Five days following operation, active motion was possible at these joints. The wound healed by first intention and at present, seven weeks after operation, the patient can flex the metacarpophalangeal joint 60 degrees and he has good motion in the interphalangea' joints.

Case 24.—A soldier received a perforating gunshot wound of the right hand, July 15, 1918. On admission the wound was healed. The index finger with the distal end of the second metacarpal was amputated, and there was an ununited fracture of the shaft of the third metacarpal with a flail middle finger. Operation, Jan. 15, 1918, when the wound had been healed four months. The scar was excised and the shaft of the second metacarpal was transplanted between the remaining ends of the third metacarpal. The divided extensor tendon to the middle finger was sutured. One week after operation there was a separation of the skin edges of the wound. The wound healed in two months with ankylosis of the metacarpophalangeal joint, but the whole middle finger, which was abducted, was a decidedly useful member. There was good union in the fractured third metacarpal.

Case 28.—A soldier, admitted, Feb. 19, 1919, had received a perforating gunshot wound of the left hand, Oct. 1, 1918. The wound became septic and drained about one month. On admission he showed a small healed scar on the palm and a large stellate scar on the dorsum of the hand. There was laceration of the extensor tendon to the ring finger. The extensor tendons to the middle and little fingers were bound down in scar tissue resulting in complete loss of function of the middle and ring fingers. There was only slight power of extension in the little finger. There was also a comminuted fracture, ununited, of the shaft of the third and fourth metacarpals, with marked overriding. Operation, March 22, 1919, when the wound had been healed ten weeks. The tendons of the middle and little finger were liberated from the scar and the extensor indicis tendon was transplanted into the distal end of the extensor tendon of the ring finger. Bone grafts, 4 cm. long, from the left tibia were transplanted between the fractured ends of the third and

Fig. 15.—Front view of efficient elastic traction splint used to obtain flexion of the small joints of the hand, first suggested to us by Major M. S. Danforth, M. C., Providence, R. I.

fourth metacarpals. The wound healed by first intention, and at present, five weeks after operation, there is good union in the fractured metacarpals and almost complete power of flexion in the middle and ring fingers.

Case 38.—A soldier received a gunshot wound of the right forearm, Nov. 1, 1918, which divided the belly of the extensor

communis digitorum muscle and destroyed the nerve supply of the extensor longus and brevis pollicis, resulting in loss of power of extension of the thumb and third and fourth fingers. The wound healed four weeks after injury. Operation, April 9, 1919, four months after wound had healed,

Fig. 16.—Side view of elastic traction splint.

when the muscle belly of the extensor communis digitorum was repaired and the extensor carpi radialis brevior was freed at its insertion and transplanted into the distal tendinous portion of the extensor longus pollicis. Eight weeks after operation, the soldier had almost complete return of extension in the thumb, third and fourth fingers.

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THE GASTRIC HYPERMOTILITY ASSOCIATED WITH DISEASES OF THE GALLBLADDER, DUODENUM, AND APPENDIX

A CLINICAL AND EXPERIMENTAL STUDY *

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The stomach in a general way is recognized by the diagnostician as the spokesman for disease anywhere within the abdominal cavity, but particularly for organic disturbances of the gallbladder, duodenum and appendix. It is not only very difficult to ascertain which of these three organs is afflicted, but it is often impossible to free the stomach entirely from suspicion of disease. It becomes, therefore, of the utmost importance to the abdominal surgeon to have some system of classifying gastric motor pictures by which a pathologic condition of the stomach is established or eliminated, so that he may determine what organ is pathologic if the stomach is normal, and to what extent the diseased organ is involved.

There are obviously two means of studying the reflex activity of the stomach: the review of recent hospital records, and the duplication, as far as possible, of the human disease equations in the experimental laboratory. The reports of gallbladder, duodenum, and appendix cases in the Third Division, Bellevue Hospital, from 1911 to the present time, have been reviewed, and from these have been selected only those cases with full roentgenographic reports based on complete gastro-intestinal examination confirmed or modified by direct inspection of the open abdomen. In those few instances in which the roentgenographic diagnosis did not correspond to the actual findings at operation, the error, which was one of inference and not of observation, was corrected. For example, a persistent irregularity in the outline of the stomach has been called organic and, at operation, the stomach appears absolutely normal; this same stomach is known to functionate normally in terms of emptying and of secreting; it is obvious that the "irregularity" described as organic may be either organic or inorganic; and, on the foregoing basis, the roentgenographic description is changed from "probable adhesion" or "scirrhus involvement" to gastrospasm. The pathologic findings have been purposely omitted; their significance, as far as the stomach function is concerned, may be the measure of the stimulation or depression of the stomach.

From these surveys, it appears that the percentages of hypermotility, hypomotility and normal gastric function in gallbladder disease (meaning cholecystitis with or without cholelithiasis) are: hypermotility, 68.4; hypomotility, 0; normal, 31.6; in diseased duodenums (duodenal ulcers): hypermotility, 75; hypomotility,

Fig. 1.—Diffuse pylorospasm secondary to postappendical obstruction. There was no bismuth to be seen beyond the obstruction in the pylorus. The bowel was wholly free from bismuth.

12.5; normal, 12.5; and in "chronic appendicitis": hypermotility, 55; hypomotility, 0; normal, 45.

There are in this, as in any similar review of case statistics, many sources of error. A few of these are: the general condition of the patient; the emotional state of the patient at the time of the roentgen-ray examina-

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* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

tion; the irritability of the stomach at the time of the examination, and the presence or absence of other diseased foci in the body. These factors should enter into the accompanying tables as variables; and the extent to which they affect the motor pictures of gallbladder,

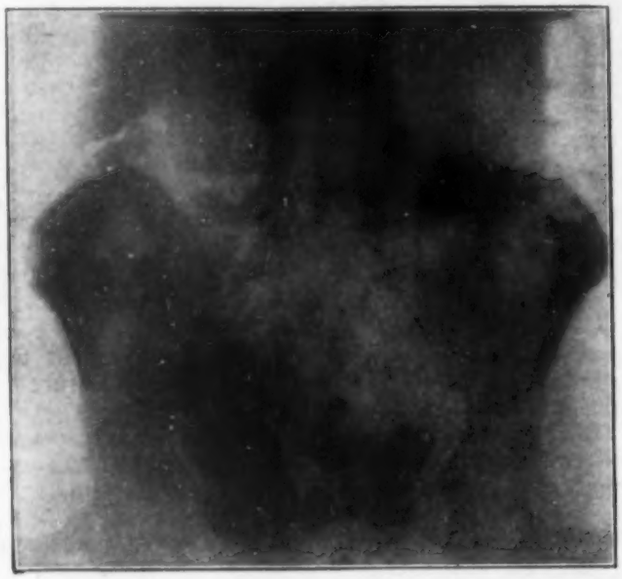

Fig. 2.—Duodenospasm secondary to postappendical obstruction, with retention in stomach and duodenum, as shown by the retained bismuth.

duodenal and appendix-stomach cases should appear in the variations in each set of cases. Hypermotility is evidently the rule in each group; hypomotility and normal stomach, being variables, indicate, for example, malnutrition, depression, a phase of gastric inactivity,

TABLE 1.—SURGICAL GALLBLADDERS

Case No.		Operation		Roentgen-ray Finding for Stomach
1. C.	120	Cholecystectomy *	(W)	Hyperperistalsis
2. C.	123	Cholecystectomy	(S)	Normal
3. GD.	8	Division of Adhesions	(D)	Hyperperistalsis
4. C.	15	Cholecystectomy	(S)	Hyperperistalsis (1st exam.) Gastrospasm (2d exam.)
5. C.	19	Cholecystectomy	(S)	Hyperperistalsis
6. GD.	20	Cholecystectomy	(S)	Normal
7. GD.	22	Cholecystectomy	(D)	Hyperperistalsis
8. C.	78	Cholecystectomy	(D)	Pylorospasm (diffuse)
9. C.	80	Cholecystectomy	(D)	Gastrospasm
10. C.	107	Cholecystectomy	(S)	Normal
11. C.	110	Cholecystectomy	(S)	Gastrospasm
12. C.	15	Cholecystectomy	(S)	Hyperperistalsis
13. C.	1	Cholecystectomy	(S)	Pylorospasm
14. C.	7	Cholecystectomy	(S)	Normal
15. C.	9	Cholecystectomy	(D)	Pylorospasm
16. C.	25	Cholecystectomy	(D)	Normal
17. C.	28	Cholecystectomy	(D)	Normal
18. C.	30	Cholecystectomy	(D)	Pylorospasm
19. C.	36	Cholecystectomy		Hyperperistalsis

* In Tables 1, 2, 3 and 4, the capitals enclosed in parentheses denote the operators: Stewart, Douglas, Cramp, Barber and Walker, designated by S, D, C, B, and W, respectively.

or the presence of two or more associated lesions. Some of these appear on the hospital charts; many, obviously, do not and cannot. A possible effect of two simultaneous lesions may be seen in Table 4.

The appendix group represents the greatest degree of variation. Hirsch, whose opinion is based on an enormous experience in such cases, holds that the rule is hypermotility for the stomach after chronic appendicitis. The "normal" percentage of 45 is probably due to the fact that a large proportion of the appendixes were either normal or functionally inactive. This attitude is well depicted in Moschcowitz' report[1] on chronic appendicitis (1,500 cases) in which the reality of chronic inflammation of the appendix existing at all is questioned. On this basis, the 55 per cent. of appendixes giving hypermotile stomachs in Table 3 represent acute exacerbations of appendicitis. "Chronic appendicitis" in a fair percentage of instances is accompanied by adhesions or scar tissue from previous attacks of acute appendicitis which, in themselves, have been shown to influence the tone and motility of the duodenum and stomach. A very recent example

TABLE 2.—SURGICAL DUODENUMS

Case No.		Operation		Roentgen-ray Finding for Stomach
1. U.D.	67	Gastro-enterostomy	(S)	Hyperperistalsis
2. U.D.	70	Gastro-enterostomy	(B)	Hyperperistalsis
3. U.D.	71	Gastro-enterostomy	(S)	Normal
4. U.D.	74	Gastro-enterostomy	(S)	Hyperperistalsis
5. U.D.	47	Gastro-enterostomy	(S)	Hyperperistalsis
6. U.D.	51	Gastro-enterostomy	(S)	Hyperperistalsis
7. U.D.	54	Gastro-enterostomy	(S)	Hyperperistalsis
8. U.D.	55	Gastro-enterostomy	(D)	Hyperperistalsis

(Fig. 1) of postappendical adhesions involving the terminal ileum, cecum, uterus and right ovary, associated with spasm of the second portion of the duodenum and with diffuse pylorospasm giving a twenty-seven-hour end-ileal retention and a six-hour gastric residue, illustrates this relationship. It is, no doubt, fair to conclude that the probabilities of gastric hypermotility as described above in the presence of diseased gallbladders, duodenal ulcers, and chronic appendicitis of the mean case, as seen at Bellevue Hospital, are, respectively, 68.4, 75 and 55.

Fig. 3.—Stomach hyperperistaltic and to the right in the presence of gallbladder disease.

Occasional experience with the contracting stomach in the open surgical abdomen has been greatly supplemented by similar experimental studies on the mammalian stomach. A recent paper[2] records a late sum-

1. Moschcowitz, E.: Ann. Surg. **63**: 697-714 (June) 1916.
2. Barber, W. H.: Ann. Surg. **69**: 271-277 (March) 1919.

mary of these observations. Table 5 comprises a list of canine experiments. Each dog, which was to all appearances a normal animal, was prepared for operation by having breakfast withheld and by being given a hypodermic injection of morphin; he was etherized by means of the Janeway intratracheal apparatus, which keeps the subject evenly under the anesthetic during

TABLE 3.—SURGICAL APPENDIXES

	Case No.		Operation		Roentgen-Ray Finding for Stomach
1.	C.A.	246	Appendectomy	(B)	Hyperperistalsis
2.	C.A.	255	Appendectomy	(S)	Normal
3.	C.A.	256	Appendectomy	(S)	Hyperperistalsis
4.	C.A.	264	Appendectomy	(S)	Normal
5.	A.A.	471	Appendectomy	(D)	Gastrospasm
6.	C.A.	234	Appendectomy	(C)	Hyperperistalsis
7.	C.A.	201	Appendectomy	(W)	Normal
8.	C.A.	207	Appendectomy	(D)	Normal
9.	C.A.	107	Appendectomy	(S)	Normal
10.	C.A.	112	Appendectomy	(D)	Normal
11.	C.A.	121	Appendectomy	(W)	Normal
12.	C.A.	122	Appendectomy	(D)	Hyperperistalsis
13.	C.A.	90	Appendectomy	(D)	Hyperperistalsis
14.	C.A.	145	Appendectomy	(S)	Hyperperistalsis
15.	C.A.	151	Appendectomy	(S)	Pylorospasm (?)
16.	C.A.	153	Appendectomy	(S)	Normal
17.	C.A.	155	Appendectomy	(S)	Normal
18.	C.A.	60	Appendectomy	(C)	Hyperperistalsis; pylorospasm
19.	C.A.	64	Appendectomy	(C)	Gastrospasm (?)
20.	C.A.	76	Appendectomy	(S)	Hyperperistalsis

the course of the experiment; and his abdomen was opened in the upper half so as to expose the stomach and duodenum with the least possible trauma of handling and of instruments. Under these conditions, the stomach was watched for the appearance of the normal two-cycle contractile phase. When these contractions appeared, which might be at once or after the lapse of half an hour, or if the organ was not properly irritable or not irritable at all (these animals had to be excluded), the stomach was considered to be approximately normally contracting, and any changes in these contractions produced by parietal and visceral traumas were carefully noted. In one instance, a non-irritable stomach was made to contract by gently blowing air into it through an esophageal catheter. This relation of the stomach contractions to rise in intragastric pressure is especially represented in the paper mentioned.[2] In these experiments, the latency of gastric response to extrinsic stimulation corresponded roughly to the latent period of contraction for involuntary muscle. This interval was often three minutes, but varied from less than one minute to ten minutes. In a fair proportion of the animals, it was impossible to describe normal contractions for the stomach at all

TABLE 4.—SURGICAL GALLBLADDER AND APPENDIX

	Case No.		Operation		Roentgen-Ray Finding for Stomach
1.	(V.6)	C.18	Appendectomy; cholecystectomy	(S)	Normal
2.		C.19	Appendectomy; cholecystectomy	(S)	Normal

or to arouse in them any reaction to extragastric stimuli. These animals are not included in Table 5.

It should be added that all these experiments were carried out before a review of the hospital records was undertaken—which should add weight to the striking correspondence in the two data. On the basis of these experiments, the motor functions of the stomach after gallbladder stimulation, in percentages (eleven cases) are: hypermotility, 61.5; hypomotility, 0; normal, 15.4; retrostalsis, 23.1. After traumatization of the duodenum (six cases), the gastric motility is: hypermotility, 66.7; hypomotility, 0; normal, 22.2; retrostalsis, 11.1; and after clamping of the appendix (cecum) (four cases): hypermotility, 100; hypomotility, 0; normal, 0; retrostalsis, 0.

In comparing the two series, it will be noted that the variables: general condition of the patient, the emotional state, the gastric irritability, and the possibility of other diseased foci occurring at the same time, enter into both the human and the canine groups, although it is no doubt true that in the latter these elements are better controlled. This is particularly applicable to the appendix cases in which the potential appendix even after pathologic examination, in many instances, in the hospital series remains problematic, while there is no doubt of essential injury to the dog's cecum which is held in a tightly locked crushing clamp. Retrostalsis appears in the experimental but not in the clinical series. This is probably accounted for by the fact that

TABLE 5.—EXPERIMENTAL SERIES

Experiment No.	Organ Irritated	Effect on Stomach	Effect on Duodenum
10	Stomach	Gastrospasm	
	Duodenum		Duodenospasm
11	Parietal peritoneum	Peristalsis inhibited	
	Cecum (appendix)	Pylorospasm	
	Gallbladder	Pylorospasm	
	Pylorus	Retrostalsis; hypermotility; gastrospasm	
18	Gallbladder	Hypermotility	
	Stomach	Hypermotility	
	Duodenum		Duodenospasm
20	Cecum (appendix)	Gastrospasm; pylorospasm	
	Gallbladder	Retrostalsis	
21	Stomach	Gastrospasm	
12	Gallbladder	Retrostalsis	
	Duodenum	Hypermotility	
32	Intestine	Hypermotility	
	Duodenum	Pylorospasm	
	Gallbladder		
	Stomach		
33	Duodenum	Retrostalsis; pylorospasm	
33	Gallbladder	Retrostalsis; hypermotility	
	Parietal peritoneum	Dilatation	
35	Gallbladder	Hypermotility; pylorospasm	
	Small intestine	?	
	Duodenum	Hypermotility; pylorospasm; incisura	
40	Parietal peritoneum	Dilatation	
	Gallbladder	?	
	Appendix	Hypermotility	
41	Gallbladder	Hypermotility	
	Parietal peritoneum	Peristalsis inhibited	
61	Gallbladder	Hypermotility	
68	Appendix; duodenum; gallbladder	Hypermotility	
69	Appendix; duodenum; gallbladder	Hypermotility	

patients who are vomiting are not submitted to roentgen-ray examination, although Hirsch reminds us that occasionally he has seen this phenomenon take place during fluoroscopic examination of the stomach. On the other hand, if vomiting did occur at the moment the roentgenogram was taken, it is probable that the direction of the wave from the pylorus toward the cardia could not be ascertained. Antistalsis is seen in the canine group because the animals are studied under conditions of acute traumas which provoke vomiting in the anesthetized creature. The human cases were chronic; the mammals correspond to acute types; but when it is remembered that the patients present themselves during their periods of acute suffering, this apparent dissimilarity loses weight.

It is apparently impossible, in the light of our present knowledge, to exclude absolutely, without direct examination, a pathologic condition of the stomach in the reflex type of individual under discussion. The roentgenologists are working on this problem, and it is hoped

that something will come of it. From experience with the surgical stomach, as presently outlined, one is led to conclude that the incisura or localized gastrospasm, which may be a response to direct or to extragastric traumas, should practically always be associated with the gastric lesion and should relatively infrequently accompany the diseased gallbladder, duodenum and appendix. Given the pathologic grouping of individuals that the roentgenologist sees, it is probably true that the incisura is not infrequent after lesions of the gallbladder and duodenum, and not uncommon after appendicitis. What has been said of the incisura probably largely applies to spasm of the pyloric sphincter. On the other hand, diffuse pylorospasm very infrequently follows clinical and experimental disease of the gallbladder, duodenum and appendix.

To estimate in advance from a study of gastric motor physiology to what degree the suspected organ is diseased may not be out of the range of human possibility. A closer cooperation between the roentgen-ray and experimental laboratories, operating room, and pathologic laboratory may work to this end. There are two investigations that throw some light on a means of indicating the diseased organ and the extent of disease: one is that of antistalsis in the stomach, and the other is the selective response of the fundus and pylorus to extrinsic stimulation. Both of these problems are undergoing further study.

SUMMARY

1. For the past eight years, the records of chronic cholecystitis, with or without cholelithiasis, duodenal ulcer, and chronic appendicitis bearing roentgen-ray notes on the gastric motor function and verified by open operation, disclose gastric hypermotility for gallbladder disease in 68.4 per cent., for duodenal ulcer in 75 per cent., and for chronic appendicitis in 55 per cent. of cases.

2. Experiments purposely carried out in the open surgical abdomen antedating this clinical review give hypermotility for gallbladder disease in 61.5 per cent., for duodenal tra ma in 66.7 per cent., and for appendix disease in 100 per cent. of experiments.

3. The motor characteristics of surgical lesions of the stomach are the incisura, and pylorospasm (pyloric-sphincter-spasm) in that they probably more frequently occur in the presence of essential disease. Diffuse pylorospasm appears very often "reflexly."

ABSTRACT OF DISCUSSION

Dr. Anthony Bassler, New York: Gastro-enterologists seem to have a very hazy idea as to what tonus really is. Some work on tonus has been done recently by Dr. Byrne of Fordham University, presenting tonus in a way which to me is practicable and understandable. Tonus may be divided into two parts, a postural status, which may be designated as the jel of the muscle. As I stand here without making any effort my muscles are in a state of jel. Then there is an additional element, the element that is added by the nervous system, mainly the cerebrospinal system. That represents the active part of tonus. I am going to speak particularly on the subject of hypermotility. I notice that in the statistics here, there are in the first statistics, gallbladder 68 and appendix 55 per cent.; whereas in the second statistics the gallbladder is reduced to 61 per cent. and the appendix elevated to 100 per cent. In my opinion, hypermotility is of no diagnostic significance in gallbladder pathologies. It is of significance in disease of the stomach, duodenum and appendix. The reason it should not be considered in gallbladder cases is anatomic as well as clinical. The nerves of the stomach come from both pneumogastrics and sympathetics, containing medulated and nonmedulated fibers. Here the sympathetic system is a complex of both kinds of fibers. The nerves that supply the stomach come from the gastric plexus and these also supply the upper level of the duodenum—thus hypermotility in duodenal ulcer. The right vagus is the more important in this connection, in that it supplies fibers to the posterior wall of the stomach, the solar plexus, spleen, pancreas, intestine, midcolon and suprarenal. Thus the stomach has direct connection with the appendix as is the fact with the duodenum. The nerves of the gallbladder come from the solar plexus through the hepatic plexus, which is in the lesser omentum in company with the bile ducts, hepatic artery and portal vein. It inosculates with the left vagus but this only supplies branches to the anterior surface of the stomach over a very limited area of the stomach—thus the gallbladder is very indirectly connected with the stomach and then only in small part. I feel definitely that the roentgen-ray teaching of hypermotility of the stomach as a symptom of gallbladder pathology should be eliminated.

Dr. R. Walter Mills, St. Louis: I do not understand what Drs. Stewart and Barber mean by hypermotility, whether they speak of total gastric motility, initial motility, or fractional motility, which, by the way, may be the method of the future. In a series of 2,500 cases in which I determined the exact time of total gastric motility after a standard roentgen-ray test meal to within seven minutes, no such findings as have been given by the present investigators were obtained. For instance, in that series there were fifty-three cases of gallbladder disease and 25 per cent. of them showed hypomotility instead of hypermotility, as indicated by a six-hour residue after the barium meal. In a series of 203 cases of duodenal ulcer, 49 per cent. showed hypomotility in the sense of total motility. In appendicitis, motility was practically that of a series of one thousand cases without any organic or marked functional disturbance. A great factor in estimating gastric motility is the type of individual. For instance, in the two extremes of bodily habitus, the stomach of the asthenic often will not clear of an average contrast meal in six hours. I have seen the same meal emptied from the stomach of the other extreme of type, the hypersthenic, in one and one-quarter hours. These are extremes. All motilities between these two form a gradient. If all persons are grouped in four types, hypersthenic, sthenic, hyposthenic and asthenic, their stomachs will be found to empty about as follows: The hypersthenics in four hours, the sthenics in four and one-half hours, the hyposthenics in five hours and the asthenics in five and one-half hours. The work of Dr. Alvarez on visceral neuromuscular activity as related to peristalsis and motility indicates that many gastric hypomotilities where the lesion is within the stomach, are the result of inhibition rather than to crippling of the gastric expulsive mechanism.

Dr. I. O. Palefski, New York: The conclusion reached by the authors is generally recognized among roentgenologists—that hypomotility is usually found in intestinal cases. However, I do not believe we can take that as a clinical application, because usually gallbladder cases that come under observation show that the predominating feature is that of gastro-intestinal stasis. At Bellevue Hospital, it has been my invariable experience from the clinical point of view that the reports showed hypomotility; while after a really mixed meal there is, perhaps, in about 80 per cent. of cases a residue after six or seven hours. I do not believe we can test the gastric motility through barium. In order to test the motility we must take into consideration the factors which enter into motility or the evacuation—the normal acidity, the normal stimulation. I feel that this is a very important point in gastro-enterology and it requires team work on the part of the gastro-enterologists as well as the roentgenologists to come to a conclusion.

Dr. Van Valzah Hayes, New York: It seems to me that we do need a more thorough method, a more satis-

factory method of testing the motility of the stomach. Just one example:

Recently a patient came to my office. I took an ordinary test breakfast and to my surprise found present pieces of vegetable eaten at dinner the night before. The patient was then sent for roentgen-ray study and the barium was given. The roentgenologist reported that "the stomach evacuates itself rapidly and is almost completely empty at two hours."

DR. G. A. FRIEDMAN, New York: I would like to ask Dr. Stewart whether he has had occasion to examine his patients roentgenographically after their appendixes or gallbladders were removed, and whether the roentgen findings in regard to motility of the gastro-intestinal tract were different from those found before operation. If the disturbance in motility was due to the diseased appendix or to the diseased gallbladder, normal motility should have established itself after the surgical procedures. If, however, the postoperative roentgen findings were identical with the preoperative findings, it may then be questionable whether the altered motility discovered previous to operation was really due to the pathology in the appendix or gallbladder. May it not be possible, then, that the disturbance in nerves regulating the musculature was the primary factor for the disturbance in motility?

DR. WILLIAM HOWARD BARBER, New York: In regard to the connections of the extrinsic gastric nerves with "reflex" gastric motility: keeping in mind the anatomy, as Dr. Bassler has described it, it is very difficult to interpret the effects on stomach tonus produced by traumatizing, clinically or experimentally, extragastric tissues; it is difficult to affirm positively that such effects are vagus or splanchnic. These nerves have been divided in the chest and in and about the stomach. From these experiments, it appears that the vagus nerve carries motor fibers to the fundus and inhibitory branches to the pyloric part. Appendical, duodenal and gallbladder irritation in the present series is most often associated with gastric hypermotility. One occasionally sees in the course of an operation, gastric motor waves followed (as the traumatism of handling continues) by fundic relaxation and, later, by pyloric relaxation or total dilatation. These changes may be due to the loss of vagus control or to the stimulation of the sympathetic.

Under the head of hypermotility are included the gastric spasms. Pylorospasm may be confined to the anatomic sphincter or to the pyloric end of the stomach. It is believed that the spasms are qualitatively identical with hypermotility. Increase in force characterizes the spasmodic contractions, but increase in rate characterizes the cycles in hyperperistalsis. Hypermotility must be differentiated from "emptying time" for it is evident that a forcibly contracting stomach may be associated with early emptying or retention accordingly whether there is pyloric relaxation or obstructive pyloric spasm. For this reason, the gastric "motor" meal is not a motor meal at all but significant of the time of gastric emptying. Of course, the anatomic types, spoken of by Dr. Mills, are to be considered among the variables influencing the tone and motility of the mean stomach. The choice of the opaque meal and the interpretation of the roentgenograms have been left with the roentgen-ray department. The gastric motor function following operation was largely a personal equation. It is to be expected that this improves as the general condition of the patient improves.

Report on After-Care of Poliomyelitis.—The annual report of the New York committee on the after-care of infantile paralysis patients has just been made public, and shows that during the past year 8,253 patients have been cared for. The report shows that regular after-care has resulted in great improvement in most cases and in many instances in permanent cure. It finds, however, that there is still a great deal to be done, and a survey now under way indicates the necessity of complete records of cripples, additional clinics, and increased means of transportation, and the development of field agencies to help those in need of orthopedic assistance.

BLOOD TYPE CLASSIFICATIONS, WITH A SLIGHT MODIFICATION OF TECHNIC

REPORT OF THE RESULTS OF MORE THAN A THOUSAND CLASSIFICATIONS

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During the year ending Feb. 1, 1919, 1,122 blood type classifications were completed in the laboratory of the U. S. Army General Hospital No. 6 and the Department Laboratory, Southeastern Department, U. S. Army, Fort McPherson, Ga.

The whole blood, slide method was employed, the technic of which, having been slightly modified by this laboratory, is herewith reported.

The blood of the individual to be typed is collected from the finger tip in a leukocyte counting pipet. The pipet is not washed out with sodium citrate solution before taking the blood, as is usually advised; but the citrate solution (2.5 per cent.) is drawn to the 0.5 mark of the pipet tube and the blood then drawn up until the bulb is half filled, when the blood remaining in the tube is drawn up about 1 mm. from the tip or point of the pipet and the citrate solution again drawn to the 0.5 mark. As a result of drawing the blood up to about 1 mm. from the tip of the pipet, a small space of air is placed between the blood and the solution, preventing admixture of the two fluids in the tube so that the solution may be drawn to the 0.5 mark without difficulty. Without this little bubble of air, it is impossible to observe the surface of the citrate solution in the tube since it mixes with the blood.

RESULTS OF CLASSIFICATIONS

Types	Number	Per Cent.
1.	54	4.8
2.	601	53.6
3.	70	6.2
4.	397	35.4

It has been observed that by drawing the citrate solution twice to the 0.5 mark instead of once to the 1.0 mark, a clot never forms in the bulb, since the solution and blood are more thoroughly mixed.

Several bulbs of blood are collected and blown into a small tube, such as a Wassermann tube. Blood from a known Type II individual (several of whom are on duty in this laboratory) is similarly collected.

The admixture of the unknown and known bloods is made by using the white blood counting pipet instead of a capillary tube. The Type II blood is drawn to the 0.1 mark and then the unknown is drawn up until the 1.0 mark is reached. This admixture is blown on a slide and thoroughly mixed by being drawn up and down in the pipet several times; any bubbles are broken by being blown on through the pipet. The entire amount of mixed blood is then drawn into the leukocyte pipet tube and blown on a drop of physiologic sodium chlorid solution on another slide (near one

end), and any bubbles are broken as before and a cover slip dropped on it.

The same process is repeated, one part of the unknown being used and nine of the Type II, which after being mixed is placed in a drop of saline on the opposite end of the same slide. The agglutination is observed with the low power of the microscope and is complete in ten minutes, sometimes in a much shorter time.

An agglutination at only one end means a Type I or Type IV, the latter if nine of the unknown agglutinates the known II, Type I if nine of the known II agglutinates the unknown.

No agglutination on either end of the slide commonly means a Type II; but there is an exception to this, as will be shown below, and agglutinations at both ends indicate a Type III with the following exception: Some Type IV bloods possess such high agglutinating power that the one tenth amount causes agglutination in the nine tenths of the Type II, giving agglutinations at both ends of the slide. It so happens that the agglutination occurring in this manner is generally somewhat weaker or less pronounced at one end than at the other, but this is not always the case. It is therefore customary in this laboratory to verify all Type III agglutinations with a known Type III, and also to corroborate the result further by agglutinating with known Types I and IV.

The exception to the statement that no agglutination on either end of the slide indicates a Type II is due to the fact that some bloods are apparently lacking in some substance or agent which, in a manner similar to the action of complement in fixation reactions, causes or permits the agglutination to proceed. When two bloods in both of which this ingredient is wanting are brought together, no agglutination results regardless of the type they may be. The accidental occurrence of such phenomena on several occasions in this laboratory has led us to confirm all results which indicate Type II by agglutination with a known Type IV.

NOTES ON DIGITALIS MEDICATION

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I. THE RATE OF DISAPPEARANCE OF DIGITALIS FROM THE BODY

When we try to maintain a patient under the full therapeutic effect of digitalis, we have always been handicapped by the fact that we do not know the rate at which the body can dispose of this substance by excretion or destruction. It seems likely from recent researches by Hatcher and Eggleston that both of these processes occur.[1]

The patient is either liable to pass gradually out from under the influence when too small a dose is given, or with overadministration of the drug to have a series of vomiting spells which give the impression that the patient is especially susceptible to the vomiting.

It is evident that animal experiment would not give a definite answer to the question of the rate of disappearance of the drug, because of the marked variations that were found between different species. The question was therefore applied directly to the patients by the following method: The drug was given so as to produce one of the mild toxic symptoms and then stopped entirely for a number of days. It was then given again until the same toxic sign reappeared. The amount of the drug used in the second course, divided by the number of days between the two toxic points, would give the daily average of the drug that had disappeared from the body in the interval, assuming that there is no change in the patient's tolerance for the drug, a fair assumption, as will be pointed out later.

The initial course was given so that the toxic symptoms appeared in from two to six or eight days, usually starting with doses of 30 minims of the tincture every four hours, or even 1 dram for the first three doses, and continuing with 15 or 20 minims every four hours. The second course was usually given in a similar way, starting with large doses and continuing with 20, 15 or even 10 minims every four hours, or three times daily. The second course was completed in an average of six days, though in a few cases it was prolonged, by using smaller doses, to ten, fourteen or seventeen days.

SIGN FOR DISCONTINUING DRUG

Vomiting was the symptom that was most frequently used as a sign for stopping the drug, as it was felt that this was a quite definite end-point. In one case the appearance of dropped beats due to heart block was used, electrocardiographic records confirming the clinical diagnosis, and in two cases severe nausea without vomiting caused the stopping of the drug at the end of each course.

The patients included ten cases of chronic cardiac valvular disease, three cases of chronic myocarditis, and one case each of chronic adhesive pericarditis, chronic parenchymatous nephritis and chronic interstitial nephritis. At the time of the first course they all showed signs of a rather marked degree of heart failure, but by the time of the second course, most of them were in better condition. The same lot of tincture of digitalis was used throughout this series. It was standardized by the cat unit method through the kindness of Prof. R. A. Hatcher and was found to be about an average strength tincture, having 1.25 c.c. per cat unit.

The details and results of the administration of the test on twenty-two occasions are shown in Table 1. The figure that represents the average rate of disappearance of the drug from the body is 22 minims of the tincture per day. In half of the cases the figure was below this and in half above it, the maximum variations being from 55 per cent. below to 82 per cent. above the average. The rate of disappearance seems to be independent of the amount of digitalis present in the body at the time, for it does not vary with the number of days elapsing between the first and the second points of toxicity. Nor was any relation noted between variations in the rate of disappearance and either the weight of the patient, the size of the doses of the tincture at the time vomiting occurred, the rapidity of administration of the total dosage, or the degree of heart failure shown by the patient at the time of the test. Susceptibility of the patient to the drug did not appear to influence the result either, for the rate of disappearance of the drug bore no relation to the quantity of digitalis per pound which was required to produce toxic symptoms in the patient's first course.

1. Hatcher and Eggleston: J. Pharmacol. & Exper. Therap. **13**: 405 (March) 1919.

In five cases (2, 4, 6, 8 and 9 in Table 1), the test was repeated after an interval and in one case twice repeated, so that we have a total of six repetitions. In three of these the difference between the first and the later figures is not great, but in one case it is 9 minims, in another 10 minims and in another 17 minims. This variation does not seem to depend on the dosage used or on the length of time elapsed between the days on which digitalis was stopped in the successive courses. It does, however, vary with the days of administration of the last course, being higher in a given patient when the course covers a greater number of days. This variation is not proportional to the number of days, nor can any explanation for it be offered.

TABLE 1.—THE RATE OF DISAPPEARANCE OF DIGITALIS FROM THE BODY

Patient	Condition of Patient	Days Elapsed between Two Points of Stopping Digitalis	Minims, Total in Course	Days of Administration of Course	Dosage During Last Day	Minims per Day Disappearance
1	A	9	90	1	30 m q4h	10
2	C	17	360	17	10 m q4h	15.3
	C	13	160	13	20 m tid	12.3
3	C	6	105	6	10 m tid	17.5
4	B	18	240	4	20 m tid	13.3
	A*	39	1,170+	39	10 m tid	30 +
5	B	10	135	3	15 m q4h	13.5
6	B	20	280	6	10 m q4h	14
	B	13	235	7	10 m q4h	18
	A*	24	550+	18	10 m tid	23 +
7	B	18	310	10	10 m tid	17
8	C	6	140	4	20 m q4h	23.3
	C	20	360	2	20 m q4h	18
9	C	10	200	3	20 m q4h	20
	B	19	570	14	10 m q4h	30
10	C	8	180	3	20 m q4h	22.5
11	C	10	270	6	15 m tid	27
12	C	15	450	4	30 m q4h	30
13	C	15	460	6	20 m q4h	30.6
14	B	7	240	3	20 m q4h	34
15	B	13	520	6	20 m q4h	40
16	B	11	440	6	20 m q4h	40
Average.....		13		6		22

A indicates that the patient shows only slight signs of heart failure.
B indicates that the patient shows moderate signs of heart failure.
C indicates that the patient shows marked signs of heart failure.
* These two patients had not yet reached the toxic stage with the dose recorded.

The results of this investigation resemble those of other work on digitalis in the variability of the figures, but nevertheless in eighteen of the twenty-two tests the result lay between 12.3 and 30.6 minims per day, while in eleven tests, half of the total, it was between 13.3 and 27 minims, the latter a total variation of only 62 per cent. of the average. It is evident from this that the average figure of 22 minims per day would afford a fairly satisfactory basis for long continued digitalis medication, since in only half of the cases would it be much more or much less than the patient's ability to dispose of the drug.

BEARING OF RESULTS OF INVESTIGATION ON ADMINISTRATION OF DIGITALIS

These results seem to have two important bearings on the administration of digitalis over long periods of time. They demonstrate the approximate efficacy of the dosage of 10 minims of tincture of digitalis twice daily, which has commonly been considered sufficient to maintain the digitalis effect which has been already produced by larger doses. Only after a considerable number of days will a patient on this dosage come to be much below the grade of digitalization at which he started, and only occasionally will this dosage lead to a return of the vomiting. Ten minims of the tincture[2] three times daily will lead to vomiting in the majority of cases, since fifteen of our twenty-two tests showed a slower rate of disappearance than this. Our results also demonstrate a new phase of the variability, from one individual to another, in the action of digitalis, a variability in the rate of disappearance from the body.

II. THE THERAPEUTIC DOSE OF TINCTURE OF DIGITALIS

In the course of the previous work it was possible to determine the amount of digitalis that was necessary to produce those early toxic manifestations (nausea, vomiting or dropped beats due to heart block) which are commonly encountered when the drug is given in sufficient dosage to obtain a prompt therapeutic effect. Sixteen suitable cases were found, nine of which were included in the previous series also. There were seven cases of chronic cardiac valvular disease, two of chronic myocarditis, two of chronic adhesive pericarditis, two of chronic parenchymatous nephritis, and one each of chronic interstitial nephritis, acute fibrinous pleurisy and carcinoma of the mediastinal glands. The noncardiac cases were included for the purpose of comparison; and since they did not give figures at either extreme of our results, it was felt that this was evidence that the handling of digitalis is not essentially different in cardiac and noncardiac cases.

TABLE 2.—THERAPEUTIC DOSE OF TINCTURE OF DIGITALIS

No. of Patient	Diagnosis	Condition	Weight	Minims Total Dosage	Days of Administration	Minims Dosage During Last Day	Minims per Pound
9	Chronic myocarditis	C	150	320	3	20 m q4h	2.14
11	Chronic myocarditis	C	110	240	4	15 m tid	2.14
		B		420	9	15 m tid	3.8
6	Chronic adherent pericarditis	B	123	275	2	20 m q4h	2.23
22	Chronic valvular disease	C	125	283	8	30 m tid	2.24
1	Chronic valvular disease	B	115	260	6	15 m tid	2.26
16	Chronic valvular disease	C	130	420	6	15 m q4h	3.23
10	Chronic parenchymatous nephritis	C	130	430	8	15 m tid	3.3
21	Acute fibrinous pleurisy	A	126	390*	6	20 m tid	3.33+
23	Chronic pericarditis	B	190	640	7	20 m q4h	3.35
3	Chronic valvular disease	C	134	490	8	15 m q4h	3.58
2	Chronic valvular disease	C	100	360	6	15 m q4h	3.6
12	Chronic valvular disease	C	200	780	7	30 m tid	3.9
20	Carcinoma	A	154	620	8	20 m q4h	4.0
19	Chronic valvular disease	C	172	690	8	30 m tid	4.06
18	Chronic parenchymatous nephritis	C	160	750	7	30 m tid	4.7
24	Chronic interstitial nephritis	B	130	640	8	20 m q4h	4.9
Average.....			140	466	6		3.33
25	Chronic valvular disease	B	91	555	22	20 m tid	6.1
26	Chronic valvular disease	B	125	830	21	20 m tid	6.64

* Did not vomit after this dose.

THE AVERAGE PERIOD OF ADMINISTRATION

None of these patients had received digitalis previous to this experiment for a period of at least three weeks. The drug was given as previously described for the first course, the average period of administration being six days, never over eight days except on one occasion, which was a repetition of the test after a thirty day interval (Patient 11, Table 2).

In this repetition of the test we see the influence of a lengthened period of administration. The first test

2. It must be remembered that 10 minims is equal to from 19 to 25 drops of tincture of digitalis, according to the dropper used.

was complete in four days and the second in nine days. Allowing for a daily disappearance from the body of 22 minims of the tincture for each of the five extra days, the figure for minims per pound of body weight is reduced to 2.8 minims, which is not very different from the 2.14 minims of the first test in this case. The time factor has a much more evident effect in the last two cases in Table 2, neither of which are included in the average for the series. The figures of 6.1 minims and 6.64 minims per pound of body weight represent the amount of the drug given over periods of twenty-two and twenty-one days respectively. When these are corrected to allow for a daily disappearance of 22 minims per day for each day over the average time of administration for the series, namely, six days, they are reduced to 2.23 and 4 minims per pound, respectively, which makes them quite comparable with the rest of the series.

Table 2 gives the data for these experiments, the average for the seventeen courses being 3.3 minims per pound of body weight. The variation is from 36 per cent. below this to 50 per cent. above it.

The only work with which this may be compared is that done by Eggleston,[3] who also found marked variations from the average dose of the tincture, variations from 38 per cent. below to 71 per cent. above the average. Since he used larger doses of the tincture, toxic effects appeared in his series after an average of only three days. His results, moreover, were reduced to a standard strength of tincture such that one cat unit equals 1.00 c.c., a stronger tincture than ours. If Eggleston's figure of 2.2 minims per pound of body weight is corrected for the difference in strength of the tinctures it is raised to 2.75 minims; and if further corrected for the three days longer that were required to produce toxic effects in our experiments, considering that 22 minims per day were disposed of and taking into account that the average weight of his patients was 140 pounds, the figure becomes 3.23 minims per pound, which is quite in agreement with our figure of 3.3 minims.

THREE IMPORTANT POINTS

Three things among these results seem to demand special mention. The importance of the period of administration is very great, for each day some of the drug is destroyed or excreted from the body. The average amount of tincture required to produce a full therapeutic or early toxic effect is found to be in agreement with Eggleston's figure, and the variations from one individual to another are of the same considerable magnitude that he found.

IMPORTANCE OF A KNOWLEDGE OF THE VARIABILITY OF THE INDICATED DOSE

This variability of the dose of digitalis for different individuals is of great importance in therapeutics. Realizing that a variability has also been found in the rate of disappearance of the drug from the body, it will be plain how complicated the problem of digitalis medication must be. Two things, however, are quite plain: when the patient has received enough digitalis for his own special organism he will show one of the early toxic effects, usually nausea or vomiting. If after this he continues nauseated while the drug is being given, it means that he is receiving too much, that is, an excess over his average daily rate of disappearance. We must carry these facts of variable susceptibility and variable disappearance clearly in mind, and combine with them the fact that digitalis is continually being disposed of by the body even during the period of administration, in order to avoid two common errors of clinical observation which may arise when digitalis is given. When a patient does not react to a usual dose of tincture of digitalis, it does not necessarily mean that the tincture is weak. It is possible that the patient may have a high susceptibility, and may require perhaps 4 or 5 minims per pound of body weight instead of the usual 2 or 3 minims, or the drug may have been given at such a slow daily rate as to little more than keep pace with the disappearance. On the other hand, the reappearance of vomiting a short time after resuming digitalis does not mean that the patient is one whose stomach cannot tolerate the drug. The time that has elapsed since the last vomiting must be considered, as well as the daily dosage.

3. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

FACTORS MAKING FOR A LOW VENEREAL RECORD IN THE AMERICAN EXPEDITIONARY FORCES

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The venereal disease incidence in the American Expeditionary Forces is considered as probably much lower than that ever obtained in our own army or in any other army operating in Europe. This opinion is not susceptible of proof as regards the armies in Europe, as the methods of reporting cases and estimating rates are not comparable. In the American army, cases were found largely as the result of physical inspections held at least twice a month, while in most other forces only those cases in which excuse from duty was granted or hospitalization occurred became known.

THE VENEREAL DISEASE RATE

The American incidence rate, based on inspection and stated in annual rates per thousand, varied for the greater part of the time during which American troops were present in large numbers in France between 62 and 31, averaging in the neighborhood of forty-five cases per thousand men per annum. This rate was never before closely approached in the U. S. army. It rose rapidly as troops were being sent home, but this rise was partly fictitious, and the true rate at that time was undeterminable. The corresponding incidence rate in the United States was always reported as higher than in France, averaging above 60 even after the armistice. It is thought that this was an error, as there is no sufficient reason known to account for a higher rate in the United States. Ignoring that rate, however, and considering only the low rate in the American Expeditionary Forces, this appeared the more remarkable for the following reasons:

(*a*) Many men in the United States were sufficiently near their usual safe sources of sexual gratification, whether wives or mistresses, to enable them to indulge occasionally and so avoid the call set up by prolonged abstinence.

(*b*) One of the most potent influences affecting conduct is the public opinion of a home community. While

in America most men were within reach of that opinion, in France they were away from it. Furthermore, public opinion in France differs radically from that in America in regard to male chastity. Notorious lack of such chastity certainly carries reproach in the United States. It does so to a much less degree, if at all, in France.

(*c*) Discomfort, overcrowding, mud, wetness, lack of fuel and lack of amusement were more marked in France than in the United States, and the comparative luxury and comfort of the prostitute's room was greater in France.

(*d*) Solicitation by prostitutes is nowhere in America anything like so common, so open, so attractive, as it was almost everywhere in France. In cities like Paris, Tours, Nice and Marseilles, real virtue was necessary to resist it at all times.

(*e*) Alcohol was much more easily, cheaply, abundantly and openly obtainable throughout France than in the neighborhood of any camp or post in the United States. Alcohol has always been considered an aid to prostitution and an important factor in the spread of venereal disease.

CAUSES FOR THE LOW INCIDENCE RATE

An effort was therefore made to obtain information which would account for the low incidence rate and which would furnish data for formulating answers to certain important, but at that time, wholly unanswerable, questions, namely, What proportion of Americans remained chaste in France? What proportion of exposures were followed by the use of prophylaxis? What is the average number of unprotected exposures per case of infection? What is the average number of exposures with prophylaxis per case of infection?

With this object in view a questionnaire was sent out in order to secure information on the following subjects:

1. What is the percentage of chaste men among soldiers?
2. What is the average number of nonprotected venereal contacts to each case of venereal disease?
3. What proportion of men have been exposed to venereal disease (that is, what proportion have had sexual contacts in France) without using prophylaxis?

The suggestion was given that information on these subjects might be obtained by having organizations of white soldiers addressed by urologists, who would set forth the need of this information and state to the men that their aid was desired in obtaining it. The urologists could then ask the men to fill out and turn in without signature a mimeographed questionnaire card giving the following information:

1. Have you had sexual intercourse in France? If so, approximately how often?
2. Have you always used prophylaxis after intercourse? If not, how many times have you failed to use it? (If the exact number of times is not known, make an estimate or state average frequency.)
3. Have you had venereal disease? If so, did it follow intercourse with prophylaxis? Did it follow intercourse without prophylaxis?

It was requested that an inquiry of this nature on a scale as large as was readily practicable be made and that the results be promptly reported.

The questions were answered more or less completely by 13,648 men located in four base sections, principally at Bordeaux, St. Nazaire, Brest and Tours. The men's own papers from Bordeaux and St. Nazaire were unfortunately not sent to me; only compilations of the replies were sent. But the papers from Tours and Brest, more than 3,000 in number, I received myself and have analyzed carefully, and certain deductions are based on that analysis only, for the reason that that was the only material available for an analysis of the sort. The total replies covered more than 104,000 illicit exposures and 215 acknowledged cases of venereal disease. Among the Tours and Brest papers there were 7 per cent. in which the men failed to answer the question as to whether they had had venereal disease; and the compilations sent from Bordeaux and St. Nazaire did not give information on that point. It is probable that the majority of men refusing to answer this question had had venereal disease in some form.

In addition to the foregoing material, the deductions set forth are based on a questionnaire put out by Col. George Walker, which was answered by 614 men who had contracted venereal disease, on reports of prophylaxis and on all reports concerning venereal disease incidence in the American Expeditionary Forces. From these sources I have drawn information that seems to me to justify the conclusion that antivenereal measures are effective in the following order:

1. Those that keep men chaste.
2. Those that diminish the opportunities for sexual contact, especially efforts at the suppression of prostitution.
3. Those that diminish the dangers of contact, especially venereal prophylaxis.
4. Those that exact punishment.

INFLUENCES THAT MAKE FOR CHASTITY

Thirty-four per cent. of 13,648 white men taken at random in the service of supply, abstained from sexual intercourse while in France, a period varying from eight months to two years and probably averaging about ten months. One third of all men were thus practically excluded from the possibility of obtaining venereal disease, and one third of the possible venereal rate was thus eliminated. As to what induced this proportion of men to remain chaste, I can advance only opinions, not proof.

My opinion, based on conversations with men, gratuitous information inserted in replies to questionnaires, and my observations of the men, is that by far the most important factor were those inherent in the men rather than in the antivenereal campaign, factors such as character, religion, love, loyalty and self-respect.

The most common reasons advanced by men to account for their own chastity were loyalty to a wife[1] or a sweetheart at home, or a resolution of abstinence before sailing and pride in keeping it.

Another third of all men indulged in intercourse so infrequently as to make their chances of acquiring disease quite small; and relative continence was probably next in importance after real chastity in keeping down venereal disease.

As to how powerful the vigorous and extensive antivenereal campaign waged in all camps and cities of the United States from the time we entered the war was in leading men to avoid prostitutes there is no means of knowing; but there is ample reason for supposing that it was a very potent factor. Well reared boys

1. The Second Report of the Provost Marshal-General, page 118, indicates that 13 per cent. of drafted men accepted for service were married.

and men in general desire to do what they know to be right; and when it is difficult to do so, a little encouragement from the outside is of the greatest value. Such encouragement was certainly afforded by the campaign of propaganda.

Another, and in France even more powerful, encouragement and aid was General Pershing's well known stand in regard to venereal diseases and prostitution. The effect of that stand and of the vigorous action based on it was to make every line officer in the American Expeditionary Forces, from generals down to second lieutenants, realize as never before that he had a great responsibility for the occurrence of venereal disease among his men; and there grew up a disapprobation of venereal contacts and of prostitution that eventually became so general as almost to deserve the name of public opinion.

After self-respect and duty, public opinion, especially that of his own locality, is one of the most powerful factors in influencing the conduct of a man. The two things just discussed, the campaign of propaganda in the United States and the official attitude of the high authority in the American Expeditionary Forces in regard to immorality and prostitution, together influenced army public opinion most favorably and usefully, especially in bringing home to inexperienced line officers their responsibilities for the instruction and control and the standards and public opinion in their organizations, and for the resulting bearing and behavior of their men. The obvious facts that the acquisition of venereal disease was purely an affair of individual conduct, and that the company officer was in a better position than chaplain, physician or any other staff officer to influence the conduct of his men, had not been seen or appreciated by many of them.

The influence of work, play and amusements in keeping men away from prostitutes cannot be expressed in figures; but it was great, and the Red Cross, the Y. M. C. A., the Knights of Columbus, the Y. M. H. A., and similar organizations that so liberally provided amusements, did a very valuable work in keeping down venereal disease, as in many other respects.

FREQUENCY OF EXPOSURE IN RELATION TO PREVALENCE OF VENEREAL DISEASES

It is self-evident that not nearly all exposures to venereal disease are followed by disease. The same thing is true of all diseases. Furthermore, some, if not all, of these diseases can be introduced only through a lesion of the skin or the mucous membrane, thus greatly lessening the danger. The fact that I was unable to obtain from other sources any information as to what proportion of exposures are followed by infection was one of the principal reasons for sending out my questionnaire. However, the information furnished by the answers is somewhat difficult to classify. If the answers of only those men who had connection infrequently enough to indicate pretty strongly that they employed prostitutes rather than mistresses, and who admitted acquiring venereal disease be considered, the number of unprotected exposures per case of infection varied from eleven at Brest to thirty at Tours, while the number of exposures followed by prophylaxis per case of infection ranged from twenty-five at Brest to seventy at Tours.

If the replies of all men whose intercourse was so infrequent as to suggest employment of prostitutes, and who answered the questions as to whether or not they had acquired venereal disease be included, the Brest rates rose to 115 and 118, while if total admitted venereal disease be divided among total reported contacts, making no allowance for the 7 per cent. of men who do not state whether or not they had venereal disease, the St. Nazaire rates rose (or fell) to 312 unprotected or 1,180 protected exposures per case of infection, while in the whole series the rate was 204 unprotected or 615 protected exposures per case.

From an analytic study of replies in my possession and from collateral evidence, I think that in France there were about thirty unprotected contacts with women of promiscuous sexual habits for each case of resulting venereal disease, while prophylaxis as used in France reduced the incidence to about one third of what it was without prophylaxis or, roughly, to ninety exposures with prophylaxis for one infection.

This proves up, in a way, since from one fourth to one third of contacts are not followed by prophylaxis, while half of all venereal disease followed the neglect of prophylaxis.

The one third as many exposures is balanced by the three times greater liability to infection.

EFFECT OF OPPORTUNITIES FOR CONTACT

A fact that stands out clearly, from whatever angle of approach the inquiry be made, is that venereal disease incidence rises and falls with the rate of contacts or the intercourse rate. This is one of the strongly condemning facts about licensed prostitution or permitted houses of prostitution. Orders issued from general headquarters placed all prostitution under a ban and all known houses of prostitution "out of bounds;" but various influences, among them an honest belief on the part of some officers that regulation of prostitution was the best means of controlling venereal disease, led to occasional and sometimes frequent neglect or violation of this order, so that there were many opportunities for observing the effect of open or tolerated houses. Always, so far as I could learn (and I made diligent inquiry), the result was an increase in the contact rate, manifested by a rise in the prophylaxis rate and followed by a rise in the venereal rate. So, in addition to being condemned as a sin against marriage and against a society grounded on monogamous marriage, and as a corrupter of police and public morals, the house of prostitution is condemned by its fruits and as a producer of venereal disease.

One third (approximately) of all men in France indulged in sexual intercourse less than ten times each, many of them only once or twice. If, as I believe, there were thirty unprotected contacts or ninety protected ones for each case of venereal disease resulting in the respective classes, it may be seen at once that the chances of any one man in this third of the total acquiring venereal disease were very small and that, after chastity, relative continence was probably the next most important factor in keeping down the incidence rate.

An interesting sidelight is thrown on this question by a consideration of the incidence rates of the armies as compared with those in the service of supply. The rates of the former group were for several months only one third to one half as high as those of the latter group, owing principally to the fact that the opportunities for exposure were relatively exceedingly limited in the territory occupied by the armies. Later, as the armies moved into Luxembourg and Germany

and the men became acquainted with the people, but particularly as large and larger numbers of men were sent back to leave areas, the contacts increased and the venereal disease incidence rose until it almost equaled that of the service of supply.

BAD INFLUENCE OF LEAVES ON VENEREAL RATES

The experiment of sending men to leave areas, an experiment based on most praiseworthy desires to interest and educate the men, had a deplorable influence on the venereal rates. The release from strict discipline and in many respects from military control, the transition from a busy life to a wholly idle one, from one wherein women scarcely entered to one in which their seductions were very appealing, and the pocketful of money that the leave men carried, were sufficient to account for much disturbance of conduct; but, in addition to that, some men actually expressed the opinion that the purpose of the leaves was to allow them to have a good time with the girls after a prolonged forced abstinence. The unfortunate result was that the contact rate among men on leave was high, and in a short time the army rates began to rise. Investigation of each individual case then showed that from 50 to 70 per cent. of the venereal disease in the armies was coming from leave areas and towns en route thereto.

As indicating the high contact rates in the areas, it may be stated that, although the men stayed for only one week, the official reports of prophylaxis showed 128,637 treatments given to 430,646 leave men, a prophylactic rate of 29.8 per cent. *per week*. The rates in different areas varied from 5.6 per cent. in the Pyrenees area of Eaux Bonnes, where the population and prostitutes were scarce, to 104.7 for Nimes, a relatively large city with only a small number of leave men.

Financial condition naturally has a great influence on the contact rate, which rises at and immediately after pay days, yet 27 per cent. of 614 men who acquired venereal disease in France asserted that they had done so without money and without price; and from places so widely separated as Antwerp and Biarritz, it was officially reported that most sexual contacts with American soldiers did not involve a money consideration.

Season has an influence, and both contact and incidence rates rose markedly in the late spring and early summer. How much of these increases was due solely to seasonal influences and how much to psychologic states related to the approach of peace and the prospect of return home is undeterminable.

That entertainments or other occupation had a great influence in keeping men out of mischief is not to be doubted. Many facts indicate that a majority of venereal contacts were most casual happenings, due often to temporary lack of other occupation or interest. That they were easily and surely prevented by a tactful word in time is clearly shown by the results of the work of a very remarkable woman in the service of the Y. M. C. A. in Paris, who, at the time when I last had reports of her work, had successfully separated 1,100 American soldiers from French street walkers between the hours of 8 p. m. and 2 a. m., without one failure and with but one insult from a soldier.

According to statements made by 614 soldiers with venereal disease, alcohol seems to have played a smaller part as a factor predisposing to venereal disease in the American Expeditionary Forces than would be supposed. Of the 614 men, only 215 admitted the use of alcohol before exposure, and only eighty-five admitted intoxication. Considering the ready accessibility of alcohol in France and its well known reputation as an attendant and promoter of venery, these figures are surprising; but as the percentage of abstainers from alcohol in the American Expeditionary Forces is not known, their significance cannot be fully appreciated.

INFLUENCES THAT DIMINISH THE DANGERS FROM ILLICIT CONNECTIONS

The most important of the influences tending to diminish the dangers from illicit intercourse are (1) inspection and detection of diseased persons and their segregation in such a manner as to prevent their transmitting their diseases, and (2) venereal prophylaxis, which, as prescribed in the American Expeditionary Forces, was simply an intelligent and controlled effort to disinfect a person and part already exposed to infection.

Inspection, if followed by segregation of infected persons, should do great good; and as applied to soldiers it is thought to accomplish much. In our army the practice is of several years' standing, and inspections must be made at least as often as twice monthly. Men found to have venereal disease are placed under treatment, and supposedly under restriction of movements until freed from infectious lesions. There is some evasion of the orders, but the enforcement and results are generally good. The men are kept from spreading their diseases and are given early and good treatment. Inspection of prostitutes should theoretically likewise be of great value. That it is so is extremely doubtful. There is no doubt as to the wisdom of segregating a prostitute found suffering with transmissible venereal disease; but that routine inspection, especially inspection followed by certification as to freedom from disease, does good is very doubtful; that it does harm is certain. The doubt about the good resulting is based on these facts:

(*a*) The inspections furnished are usually so imperfect as to be mere formalities in many instances, and without value. I know of no more striking evidence of this than that furnished by Col. George Walker, namely, that in *five years* only five cases of syphilis were detected in inmates of houses of prostitution in all the city of Paris.

(*b*) The inspections for many reasons, mainly economic, cannot be made nearly so frequently as exposures, and a woman found free from disease on one day may develop it the next and have intercourse with a hundred or more men before the next inspection.

(*c*) The prostitute has many reasons for wishing to escape segregation and withdrawal from her business and pleasure, and she also acquires skill in passing inspections.

(*d*) A thorough and efficient inspection is a time-consuming and skilled procedure, and it must be paid for accordingly. If the state or municipality pays, the cost is considered prohibitive. If the woman pays, there is at once established a fair presumption of partiality.

Harm is done by examination and certification of good health because such certificates, when shown, create a feeling of safety that is unjustified.

For these reasons, examination of prostitutes should not be relied on as a sound measure of venereal dis-

ease control, and it should not be followed by certification of good health; but, if used, it should be followed by prompt segregation and treatment of women found diseased. It was a measure almost entirely ignored in the American Expeditionary Forces, and was without influence on the low disease rate.

VENEREAL PROPHYLAXIS

Venereal prophylaxis stands on a somewhat similar but different basis. There is some reason to fear that too great confidence in the value of prophylaxis, and especially of a prophylactic measure taken in advance of connection, may relieve inhibiting fears and so tend to promote illicit connections. On the other hand, the duty of trying to protect a soldier from his own folly and to save his services to the government, and to disinfect him and prevent his acquiring venereal disease to which he has been exposed, is analogous to the duty of vaccinating him after his wilful exposure of himself to smallpox, or that of treating him to prevent the possible loss of an eye injured in a drunken fight of his own seeking. The use of prophylaxis, *after the exposure,* is justified and a duty in that sense. As stated above, prophylaxis as it was used in France, that is, without making allowance for errors in technic or delay in seeking it, reduced the liability to venereal disease to about one third of what it would have been otherwise. It is probable that improvement in administration and elimination of delays would further improve results.

The much greater relative frequency of chancroid in France, approximately two fifths of all venereal disease as compared with less than 4 per cent. of the total venereal disease brought in with the draft, and the lesser relative frequency of gonorrhea, two fifths as compared with four fifths, taken in connection with the fact that the relative proportions were not greatly different in France among men who had contracted venereal disease after use or after neglect of prophylaxis, makes it very difficult to state in what degree prophylaxis is effective against the individual diseases. However, our impression in France was that, as used, it was less effective against chancroid than against gonorrhea or syphilis.

PUNISHMENT AS A FACTOR IN PREVENTING VENEREAL DISEASE

In America, the man excused from duty because of venereal disease not acquired in line of duty receives no pay for the time he is so excused. Furthermore, if he has acquired venereal disease from an exposure not followed by prophylaxis, he is tried by court-martial for neglect of prophylaxis. In the American Expeditionary Forces, the acquiring a venereal disease was in itself a military offense to be tried by court-martial, with neglect of prophylaxis as a separate count. Furthermore, for a part of the time, all infected men were sent to venereal camps and there segregated, a measure amounting to punishment in some respects, and during another part of the time collective punishments, for example, restrictions as to passes, were inflicted on organizations having high venereal rates.

These collective punishments were effective in bringing down venereal rates and influencing public opinion against sexual offenders within the organization, but they were regarded as unjust because they punished the innocent with the guilty, and they were therefore ordered stopped.

It is wholly just and fair to stop pay for time lost from duty because of the man's own misconduct; otherwise a premium is placed on misconduct and a man could escape much disagreeable and hard work and still draw his full pay by the expedient of acquiring venereal disease. Furthermore, the result of this policy in reducing venereal disease justifies it.

Good arguments can be advanced for making the acquisition of venereal disease and the neglect of prophylaxis military offenses and demanding trial for the offenders.

It is probable that the knowledge that punishment will follow the acquisition of venereal disease causes some men to abstain from intercourse; but it is also probable that this influence is less potent than those previously discussed, for the reason that most men do not themselves expect to "get caught" at any specific time, and the additional reason that, as stated above, a large proportion of illicit contacts are very casual affairs and are brought about by circumstances that lead to the forgetting or neglect of prudent counsels of "safety first." What can most be depended on to stand against the alluring circumstances of a tempting occasion are fixed principles, and fixed habits of thought and character. These are the effects of rearing and of lifelong education rather than of sporadic efforts spent on adults.

STUDIES ON HYPERTHYROIDISM *

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This report is based on the study of thirty men in whom the physical findings were suggestive of hyperthyroidism. They had rapid pulse, enlargement of the thyroid gland, fine tremor of the hands, moist, clammy palms, and some of the eye signs usually associated with exophthalmic goiter. The object of the observations was to determine if possible whether the thyroid gland was the basis of these physical findings.

METHOD OF STUDY

In addition to the usual routine physical examination and laboratory work, blood sugar determinations were made following the administration of glucose by mouth. The response to epinephrin and the effect of thyroid feeding were also noted.

Technic of the Sugar Tolerance Test.—The test was made in the same manner as that recently described by Janney and Isaacson[1] except that the blood sugar determinations were made by the Lewis-Benedict method.[2] The patient was not allowed breakfast. About 8 a. m., a sample of blood was taken for the initial blood sugar determination. The patient was then weighed, after which he was given a glucose drink, containing 1.75 gm. of glucose per kilogram of body weight, dissolved in from 250 to 300 c.c. of water. Early in the work, blood was withdrawn for sugar determinations at one-half, one, one and one-half, two and three hour periods following the administration. Later, however, as we were interested only in whether the blood sugar returned to the fasting value within a two hour period, blood sugar readings were made at

* From the Medical Service, Base Hospital, Camp Travis, Texas.

1. Janney, N. W., and Isaacson, V. I.: Blood Sugar Tolerance Test, J. A. M. A. **70**: 1131 (April 20) 1918.
2. Lewis, R. C., and Benedict, S. R.: J. Biol. Chem. **20**: 61, 1915.

TABLE 1.—FINDINGS IN THIRTY CASES

Case Number	Nativity	Duration of Service	Response to Exercise	Convalescing from	Present Symptoms	Duration	Thyroid Enlargement	Tremor of Hands	Eye Findings			Pulse Rate	Bl'd Pressure		Differential Blood Count					Blood Sugar, %			Urine					Diagnosis and Disposition
									Stellwag Sign	Von Graefe Sign	Exophthalmos		Systolic	Diastolic	White	Polymorphonuclears	Small Mononuclears	Large Mononuclears	Transitionals	Eosinophils	Before Glucose	2 Hours After	3 Hours After	Before Glucose	2 Hours After	3 Hours After	Epinephrin	Response to Thyroid	
1	Tex.	8 mo	Good	Influenzal pneumonia	Nervous and weak	6 yrs.	Slight	Moderate	+	+	—	90-100	120	70	10,300	75	22	3	1	0	0.090	0.102	0.089	—	—	—	+	+	Hyperthyroidism; returned to duty
2	Ark.	2 mo.	Good	Influenzal pneumonia	Nervous	6 yrs.	Slight	Slight	—	+	—	80-90	120	70	13,200	58	38	4	0	0	0.095	0.096	0.093	—	—	—	—	—	Simple tachycardia; returned to duty
3	Ark.	4 yrs.	Good	Influenza	Short of breath, palpitation	Since influenza	Slight	Moderate	+	+	—	90-100	140	85	13,400	67	28	3	0	2	0.078	0.102	0.084	—	—	—	+	+	Hyperthyroidism; returned to duty
4	Tex.	3 mo.	Good	Influenza	Dizziness, short of breath, nervous	Since influenza	Slight	Moderate	—	+	—	90-100	124	80	7,400	70	15	7	0	4	0.084	0.087	0.093	—	—	—	+	—	Irritable heart; returned to duty
5	Tex.	9 mo.	Poor	Influenza	Dizziness, short of breath, nervous	4 yrs.	Slight	Moderate	—	+	—	90-100	130	70	9,300	50	20	15	3	6	0.087	0.090	0.084	—	—	—	+	—	Irritable heart; recommended for S. C. D.
6	N. Y.	18 mo.	Good	Influenzal pneumonia	Nervous, weak, palpitation	Since influenza	Moderate	Moderate	+	+	—	0-120	145	80	9,900	73	24	2	0	1	0.075	0.077	0.075	—	—	—	—	—	Irritable heart; returned to duty
7	Mo.	7 mo.	Poor	Influenza	Nervous, palpitation	6 yrs.	Marked	Marked	+	+	—	0-110	130	80	5,600	57	33	7	1	2	0.093	0.123	0.099	—	+	—	—	+	Hyperthyroidism; recommended for S. C. D.
8	Mo.	8 mo.	Good	Measles, pneumonia	Nervous, palpitation	2 yrs.	Moderate	Moderate	—	+	—	100	130	80	7,800	60	25	10	1	3	0.090	0.087	0.090	—	—	—	—	—	Simple tachycardia; returned to duty
9	Ark.	2 mo.	Good	Measles, pneumonia	No symptoms	.....	Slight	Moderate	—	+	—	90	120	60	16,700	65	28	4	2	1	0.087	0.087	0.090	—	—	—	—	—	Simple tachycardia; returned to duty
10	Pa.	19 mo.	Good	Influenzal pneumonia	Nervous	6 yrs.	Slight	Moderate	—	+	—	0-100	120	70	10,700	66	30	2	2	0	0.084	0.096	0.09	—	—	—	+	—	Simple tachycardia; returned to duty
11	Wis.	7 mo.	Good	Influenza	No symptoms	.....	Slight	Moderate	—	+	—	100	145	85	6,100	70	25	4	1	0	0.090	0.102	0.090	—	—	—	—	—	Simple tachycardia; returned to duty
12	Tex.	8 mo.	Good	Influenza	Nervous	Since influenza	Slight	Marked	—	+	—	100	140	95	7,000	67	29	1	2	1	0.087	0.093	0.084	—	—	—	+	—	Simple tachycardia; returned to duty
13	Tex.	4 mo.	Good	Influenza	Nervous	6 yrs.	Slight	Slight	—	+	—	100	120	74	7,800	65	30	3	1	1	0.084	0.082	0.084	—	—	—	+	—	Simple tachycardia; returned to duty
14	Tex.	4 mo.	Good	Influenzal pneumonia	Nervous	Since illness	Slight	Marked	—	+	—	100	120	80	10,200	76	22	1	1	0	0.086	0.090	0.084	—	+	—	—	—	Simple tachycardia; returned to duty
15	Tex.	4 mo.	Good	Influenzal pneumonia	Nervous	Since illness	Slight	Moderate	+	+	—	98	120	80	8,500	70	24	4	2	0	0.090	0.086	0.090	—	—	—	—	—	Simple tachycardia; returned to duty
16	Okl.	7 mo.	Good	Influenza	Nervous, palpitation	Since illness	Slight	Moderate	+	+	—	-100	155	90	5,700	65	30	4	1	0	0.090	0.126	0.102	—	—	—	+	+	Hyperthyroidism; returned to duty
17	Tex.	6 mo.	Good	Influenza	Nervous	Since influenza	Slight	Slight	—	+	—	110	136	84	8,400	64	32	3	0	1	0.070	0.090	0.078	—	—	—	—	—	Simple tachycardia; returned to duty
18	Tex.	18 mo.	Good	Influenza	No symptoms	.....	Slight	Slight	—	+	—	90	130	80	7,800	62	23	2	2	1	0.093	0.090	0.084	—	—	—	—	—	Simple tachycardia; returned to duty
19	Tex.	3 mo.	Good	Influenza	No symptoms	.....	Slight	Slight	—	+	—	90	128	80	7,200	69	27	4	0	0	0.084	0.092	0.092	—	—	—	—	—	Simple tachycardia; returned to duty
20	Tex.	3 mo.	Good	Influenza	No symptoms	.....	Slight	Slight	—	+	—	100	120	65	10,300	62	34	1	3	0	0.093	0.102	0.099	—	—	—	+	—	Simple tachycardia; returned to duty
21	Ill.	32 mo.	Fair	Influenza	Short of breath, feels exhausted	Since childhood	Moderate	Moderate	+	+	—	90	136	90	6,000	60	40	0	0	0	0.084	0.099	0.093	—	—	—	—	—	Irritable heart; returned to duty
22	Tex.	4 mo.	Fair	Influenza	Short of breath, feels exhausted	6 yrs.	Moderate	Moderate	+	+	—	90	173	93	11,600	73	23	2	2	2	0.102	0.108	0.102	—	—	—	+	+	Hyperthyroidism; recommended for S. C. D.
23	Tex.	4 mo.	Good	Influenza	Short of breath, feels exhausted	Since childhood	Slight	Marked	—	+	—	100	120	80	14,500	82	15	0	2	1	0.099	0.096	0.093	—	—	—	+?	—	Irritable heart; returned to duty
24	Pa.	6 mo.	Poor	Influenza	Short of breath, feels exhausted	3 yrs.	Slight	Marked	—	+	—	100	120	85	6,600	63	27	9	1	0	0.081	0.090	0.084	—	—	—	+	—	Irritable heart; returned to duty
25	Tex.	4 mo.	Fair	Influenzal pneumonia	No complaint	.....	Slight	Moderate	—	+	—	90	128	80	7,000	47	37	8	5	3	0.088	0.093	0.081	—	—	—	—	—	Simple tachycardia; returned to duty
26	Ill.	18 mo.	Poor	Influenzal pneumonia	Nervous, palpitation	3 yrs.	Moderate	Marked	—	+	—	100	134	80	10,300	65	32	0	3	0	0.081	0.087	0.090	—	—	—	—	—	Irritable heart; recommended for S. C. D.
27	Ill.	6 mo.	Good	Influenza and pneumonia	Nervous	Since childhood	Slight	Marked	—	—	—	90-100	125	80	14,300	81	19	0	0	0	0.081	0.081	0.084	—	—	—	+	—	Simple tachycardia; returned to duty
28	Ill.	8 mo.	Good	Influenza and pneumonia	Nervous	Since childhood	Slight	Marked	—	+	—	88-100	120	80	14,700	68	24	7	1	0	0.084	0.096	0.075	—	—	—	—	—	Simple tachycardia; returned to duty
29	Tex.	6 mo.	Fair	Influenza	Nervous, weakness	Since illness	Moderate	Moderate	—	—	—	90	120	80	10,800	73	22	3	2	0	0.086	0.090	0.084	—	—	—	—	—	Simple tachycardia; returned to duty
30	Tex.	12 mo.	Fair	Influenza	Nervous, palpitation	2 yrs.	Moderate	Moderate	+	+	—	100	160	90	8,400	56	35	4	3	2	0.090	0.117	0.072	—	+	+	+	+	Hyperthyroidism; returned to duty

two and three hour periods. Specimens of urine were obtained and examined for sugar immediately following the time at which samples of blood were taken.

Epinephrin Test.—The Goetsch test was employed in the same manner that we recently used in the study of tachycardia following influenzal pneumonia.[3] The men were put to bed in a quiet room. After the pulse and blood pressure readings became constant, an injection

3. Smith, F. M.: Tachycardia Following Influenza-Pneumonia, unpublished.

of 5 c.c. of 1:1,000 epinephrin (adrenalin) solution was made into the deltoid muscle. Records were made of the pulse, respiration, and blood pressure every two minutes for ten minutes, and then every five minutes for one hour. Following this, observations were made at ten minute intervals for one-half hour. In the meantime, any subjective symptoms that might arise were carefully noted. We considered a reaction positive when there was an increase of from fifteen to twenty points in the pulse rate and blood pressure, accompanied by an exaggeration of the tremor of the hands, nervousness, palpitation of the heart and arterial pulsations.

Method of Thyroid Administration.—The men were put to bed and isolated in one end of the ward. Other convalescent patients were instructed not to disturb them. The desiccated thyroid gland of sheep was used (Lilly's preparation). The initial dose was one-fourth grain morning and evening. This dose was increased one-fourth grain each day and was continued until there was a response or the patient was getting 5 grains a day. The pulse was taken four times a day. The nurse was instructed to take the pulse, whenever possible when the men were asleep. A definite increase in pulse rate while asleep, associated with increased nervousness and irritability, was regarded as a positive reaction and the thyroid discontinued.

In Table 1 are given the physical findings, differential blood count, blood sugar determinations, response to epinephrin and thyroid, final diagnosis, and the disposition of the thirty cases studied.

GENERAL HISTORIES AND SYMPTOMS

Most of the men gave Texas as their native state. Illinois was represented by four; Pennsylvania and Arkansas by two each; Mississippi, New York, Oklahoma, Colorado, Wisconsin and Missouri by one each.

Fifteen men had been in service from two to six months, and nine from six to twelve months. Four had given one and one-half years of service; one, practically three years, and one, four years. The majority of these men had responded well to military service. Only four gave a history of being unable to do their work.

Practically all of them were convalescing from influenza. They had been retained in the hospital because of their rapid pulse. In eight instances the influenza was complicated by pneumonia; in two, the pneumonia developed during the course of measles.

The predominating symptom was nervousness. Twenty-four made this complaint. Ten men had, in addition, palpitation of the heart, shortness of breath, dizziness, and a feeling of exhaustion on exertion. The remaining six men had no complaint other than slight weakness, which is to be expected during the convalescent period of any serious illness.

In eight men, these symptoms were not noted prior to their recent illness. In fifteen instances, the onset dated back to two, three, four, six years or even childhood. As far as could be determined, the army service had not aggravated these symptoms except in three instances. These three men had become more nervous and had lost from 10 to 15 pounds in weight in the last two months. They still, however, were able to do their work fairly well.

PHYSICAL FINDINGS

All of the men except two had a lagging of the upper lids (von Graefe's sign). This sign was variable: one day it might be marked, and the next day not demonstrable. In ten cases there was an apparent widening of the palpebral fissure (Stellwag's sign). None had a distinct exophthalmos.

Thyroid Gland.—In every case the thyroid gland was distinctly enlarged. In most instances this enlargement was recorded as being slight. The right lobe was the portion that was involved in the majority of cases. On palpation the gland was found to be of soft consistency, with the exception of an occasional firmer area in either the upper or the lower pole.

Pulse Rate.—The pulse reading was made in each instance after the patient had been quiet in bed for several minutes. In practically all of the cases it ranged from 90 to 100 under these conditions. One of the noticeable features was the marked increase in the rate of the pulse under the least excitement. The true rate could not be obtained until the men became acquainted with their physician and became accustomed to having a stethoscope placed on the precordia, or the radial artery palpated.

Blood Pressure.—The blood pressure was based on several determinations made under uniform conditions. In twenty cases, it was about normal for men between 20 and 30 years of age. In ten, the systolic pressure ranged from 130 to 155, and in one case it was as high as 170 mm. of mercury. In none were there any evidences of kidney lesions.

TABLE 2.—BLOOD SUGAR VALUES IN CONTROL CASES

Case Number	Before Glucose, per Cent.	Two Hours After, per Cent.	Three Hours After, per Cent.
1	0.086	0.084	0.084
2	0.090	0.090	0.084
3	0.084	0.092	0.086
4	0.087	0.090	0.084
5	0.090	0.087	0.090
6	0.090	0.090	0.087
7	0.093	0.090	0.084
8	0.088	0.093	0.081
9	0.092	0.096	0.094
10	0.094	0.092	0.092

White and Differential Blood Count.—The blood counts were always made in the morning, from two and a half to three hours after breakfast. In a few cases, there was a slight polymorphonuclear leukocytosis. In four men, this was accounted for by a slight tonsillitis which disappeared in a few days. In the other cases, we were unable to give a satisfactory explanation. In nine cases, there was a relative increase in the small mononuclear cells above 30 per cent.

Blood Sugar.—We were particularly interested in whether the blood sugar returned to the fasting level within a two hour period following the administration of 1.75 gm. of glucose per kilogram body weight. Consequently, only the values prior to and at two and three hour periods after the administration of glucose have been tabulated (Table 1). In Cases 1, 3, 7, 16, 22 and 30, the blood sugar value ranged from 0.102 to 0.117 per cent. at the two hour period. In Case 1, this was 0.012 per cent.; 3, 0.024 per cent.; 7, 0.03 per cent.; 16, 0.036 per cent.; 22, 0.006 per cent., and 30, 0.027 per cent. above the fasting level.

Table 2 shows the blood sugar values in ten convalescing men from a general medicine ward taken as controls. They had no symptoms or findings suggestive of hyperthyroidism or other endocrine disturbance. It is noted that the blood sugar two hours

after the administration of glucose varied very little from that of the fasting level.

Response to Thyroid Feeding.—Six men were definitely sensitive to small doses of desiccated thyroid gland. This was manifested by an increase in pulse rate, flushing, nervousness, and palpitation of the heart. In other words, there was a definite aggravation of the symptoms that these men presented. In two cases, the reaction was noted when they were getting

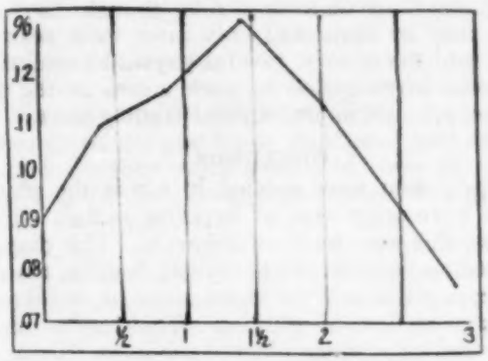

Chart 1.—Blood sugar values at stated periods in a hyperthyroid case following the administration of glucose. The urine contained sugar at the one, one and one-half and two-hour periods.

1½ grains a day; in one, 2 grains, and in three, 2½ grains. In the remaining cases, doses of 5 grains a day had no appreciable effect.

Epinephrin Test.—Eleven men responded positively to the epinephrin test. In two other cases, there was a reaction which we did not think was sufficiently definite to record as positive. The six cases that were hypersensitive to desiccated thyroid gave a positive response to epinephrin.

DIAGNOSIS

The diagnosis of hyperthyroidism was made in six cases. The most convincing evidence in favor of this diagnosis was the response to thyroid feeding. There was also in these cases a suggestion of disturbed carbohydrate metabolism and a hypersensitiveness to epinephrin. The latter two facts might be considered as supporting evidence.

Seven cases were diagnosed as irritable heart. All of these patients had the symptoms of shortness of breath, feeling of weakness, and palpitation of the heart on exertion. In five instances, this condition had existed prior to their entrance into military service. In the remaining two cases, the trouble resulted from influenza. Three patients gave a positive response to epinephrin. None reacted to thyroid.

The remaining seventeen cases were diagnosed as simple tachycardia. One of these men had a subacute bronchitis following influenza. In the remaining sixteen patients no etiologic basis was established for the tachycardia. Four gave a positive epinephrin response.

DISPOSITION OF PATIENTS

Two of the men diagnosed as having hyperthyroidism were recommended for "a surgeon's certificate of disability." The condition of these men had definitely existed prior to their entrance into the army, and it did not seem likely that they would be able safely to do full duty again. The remaining four were returned to duty. They had given good service prior to their recent illness. At the time of their discharge from the hospital their general condition seemed very good. The influenza was most probably a big factor in the production of their condition.

Five of the men diagnosed as having irritable heart were returned to duty. These men had a tolerance for exercise equal to that prior to their illness. The two remaining patients were discharged on a surgeon's certificate of disability. Their disability was not incurred in line of duty, and graded exercise and general treatment did not appreciably improve their tolerance for work.

Those men that were diagnosed as having simple tachycardia were all returned to duty. They were able to do strenuous exercise. The symptoms that some of them presented disappeared. None of the men considered in this report returned to the hospital within the two months' period during which they were followed. As far as we were able to ascertain, they were giving good service.

COMMENT

Value of the Sugar Tolerance Test.—It is well known through the work of Geyelin,[4] Janney and Isaacson, Hamman and Hirschmann,[5] Wilder and Sansum,[6] and others, that there is a disturbed carbohydrate metabolism in a large percentage of cases of hyperthyroidism. This is manifested by a delayed blood sugar curve, as illustrated in Chart 1. This represents the blood sugar values at stated periods in a hyperthyroid case following the administration of glucose, as previously described. It is noted that the curve is rounded and does not reach the fasting level until well after two hours, even though a portion of the glucose was excreted in the urine. Chart 2 represents the blood sugar curves in control cases. In each instance, the fasting level was reached in two hours.

The value of the test for sugar tolerance in the diagnosis of early hyperthyroidism has not been definitely determined. Janney and Isaacson seem to think that

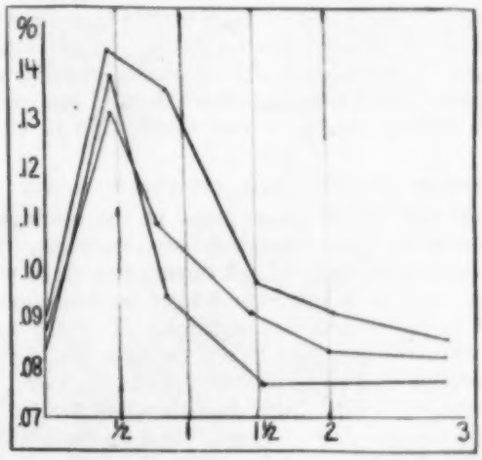

Chart 2.—Blood sugar curve in control cases. The urine was negative for sugar in each instance.

it is of considerable value even at the stage when the fasting blood sugar concentration is normal. These investigators state that the difference between the fasting blood sugar level and that two hours following the administration seldom exceeds 0.01 per cent. Five of

4. Geyelin, H. R.: The Carbohydrate Metabolism in Hyperthyroidism as Determined by Examination of Blood and Urine, Arch. Int. Med. **16**: 975 (Dec.) 1915
5. Hamman, Louis, and Hirschmann, I. L.: Studies on Blood Sugar, Arch. Int. Med. **20**: 761 (Nov.) 1917.
6. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med. **19**: 311 (Feb.) 1917.

the cases considered in this report ranged from 0.012 to 0.036 per cent. above the fasting level at the two hour period. When compared with the results of the remaining thirty cases and with those of the controls, they are at least suggestive of a disturbed carbohydrate metabolism. These results might, therefore, be considered confirmatory evidence in favor of the diagnosis of hyperthyroidism if associated with other reliable positive findings.

The Epinephrin Test.—It seems to have been fairly conclusively proved by Cannon[7] and his associates that there is a hypersensitive sympathetic in the cases of hyperthyroidism. Goetsch,[8] working on this basis, devised the epinephrin test employed in this work. His conclusions, that this test is of considerable value in the diagnosis of borderline cases of this condition, seem convincing in view of the operative results in his series of cases.

May we not have a hypersensitive sympathetic which is not associated with hyperthyroidism? Frazier and Wilson,[9] Peabody,[10] and I[3] have obtained a positive test in men with irritable heart in whom the thyroid has not been established as the etiologic factor. The men considered in this report who had a possible disturbed carbohydrate metabolism and who reacted to small doses of thyroid gland all responded to threshold doses of epinephrin. Seven other men, however, who had a normal blood sugar curve following the administration of glucose and did not respond to thyroid feeding also reacted positively to the epinephrin test. Further investigation is necessary to clear matters.

Thyroid Feeding.—Even though the theory that hypersecretion of the thyroid is the cause of hyperthyroidism is questioned, it is admitted that a large percentage of these patients are very sensitive to small doses of thyroid gland, so sensitive, in fact, that the use of thyroid in doubtful cases of hyperthyroidism is considered a dangerous procedure. Musser[11] and Forchheimer[12] cite cases of hyperthyroidism in which a small dose of thyroid caused death. In the experiments here reported, possible harmful results were borne in mind and the desiccated thyroid stopped as soon as a definite reaction was noted. No ill effects resulted.

HYPERTHYROIDISM AND IRRITABLE HEART

The part that the thyroid plays in the etiology of irritable heart has been a much debated question. This was especially true in England during the early years of the war, and to a less extent later in this country. Goodall,[13] in the Chadwick lecture, based on the study of 2,250 cases of irritable heart, thought the thyroid was responsible in a large percentage of the cases. Sir James Barr,[14] White and Herman-Johnson,[15] and others held similar views. Lewis[16] and his co-workers, on the other hand, reported a thyroid enlargement in only 4 per cent. of 504 cases studied. They seemed to be convinced that hyperthyroidism was an unimportant factor. A number of their men were tested with thyroid extract.

In this country, Harlow Brooks[17] believes that the thyroid plays an important rôle in the cause of irritable heart. Friedlander and Freyhof[18] take an opposite stand. Other very reliable medical men who have expressed themselves in my presence are divided on the question.

These studies I have made go to show that in some cases that might ordinarily pass for irritable heart, the thyroid plays an important rôle, though its hyperactivity may be unmasked only after most searching inquiry into the history, careful physical examination, and special investigation by such means as the sugar tolerance, epinephrin and thyroid feeding tests.

CONCLUSION

1. Thirty men were studied in whom the physical findings were suggestive of hyperthyroidism. In six instances, this was the final diagnosis. This diagnosis was based on the response to thyroid feeding, the reaction to epinephrin, and the blood sugar curve following the administration of glucose. The results of the thyroid feeding were considered the most reliable evidence in favor of the diagnosis made. This was further substantiated by positive response to epinephrin and a suggestive disturbed carbohydrate metabolism.

2. Seven cases were diagnosed irritable heart. In five instances this trouble had existed prior to the entrance of the patients into military service. In two cases, it seemed to be the result of influenza.

3. Seventeen cases were diagnosed simple tachycardia. In sixteen instances, no cause for the tachycardia was found. None of the cases diagnosed irritable heart or simple tachycardia responded to doses of 5 grains of desiccated thyroid, nor was there any suggestion of disturbed carbohydrate metabolism.

122 South Michigan Avenue.

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PROGNOSIS OF SPECIFIC AORTITIS

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In January, 1909, the first case of syphilitic disease of the aorta appeared in the necropsy records of the Massachusetts General Hospital. In this case the spirochetes were first successfully demonstrated by Professor Wright, and thus the clinical entity of specific aortitis was given pathologic confirmation in this country. A recent informal discussion disclosed the fact that no one really knows much about its prognosis, and it was suggested that the medical records should be analyzed to see what light could be thrown on the subject. The importance of specific aortitis is the more apparent when we note that, since the above-mentioned case of January, 1909, the disease has been found in 5.5 per cent. of the hospital necropsies, and in 4.5 per cent. it was in an advanced stage or was the primary cause of death.

In pursuance of the foregoing suggestion, I have carefully examined the 105 records from the outpatient department in which the diagnosis of specific aortitis has appeared. For the purposes of this study the

investigation has been limited to cases in which the diagnosis was made before a definite aneurysm was present, as it was in these presumably earlier cases that the information as to prognosis was desired. It was felt that aneurysm may better be studied by itself. Believing that some readers might hesitate to accept the diagnosis in some of the cases, I have further excluded all records in which the diagnosis was not confirmed by a positive Wassermann reaction, roentgenographic findings, or both, or at least supported by repeated examinations made by more than one member of the visiting staff.

It is evident that a study with a view to obtaining data as to prognosis is attended with serious handicaps. Three of the more evident difficulties are:

1. Ignorance of the gravity of the disease and sheer inability to leave their work prevented some patients from attending the clinic frequently enough to be given treatment in its best form.

2. The patients were not all given identical treatment, owing, no doubt, to the fact that the exhibition of arsphenamin and allied arsenicals has been in process of evolution. During its first years, I recall, it was not considered proper to administer arsphenamin in cardiac cases, and since it has been extended to such, the administration has varied in size and number of doses.

3. A trouble that directly affects my own attempt to find out results is the failure to trace patients who are no longer attending the clinic. Thus, I obtained only twenty-two answers to follow-up letters.

THE MATERIAL STUDIED

As the primary purpose of this paper is information as to prognosis, I shall not go deeply into the signs and symptoms; but some statement is necessary in order to give a picture of the material on which I am basing my findings. Resort to the medical literature has purposely been avoided, so that, if possible, I might bring a fresh point of view to the subject.

I selected sixty-one cases, of which fifty-six were men, and five women, with the average age of 43.7 and 44.4 years, respectively. The female group is too small to make it appear practical to separate further the statistics by sex.

History of Syphilis.—In thirty-five cases, previous syphilis was admitted, in eighteen it was denied, and in eight there was no statement on the record. The average number of years, in the thirty-five cases in which the disease was admitted, was 16.

Wassermann Reaction.—The reaction was recorded as strongly positive in twenty-five, and varied from positive to suspicious in twenty-three other cases. In two of the patients the reaction was negative at first and later became positive.

Symptoms.—Shortness of breath, pain in the chest, or both, were present in all of the cases. Cough was present in fifteen cases, and cardiac palpitation in nine. The duration of the symptoms before reporting to the hospital was recorded in twenty-five cases, the shortest being two weeks and the longest five years, with an average of one and a quarter years.

Physical Findings.—Supracardiac dulness was increased in twenty-seven cases. In twenty-three patients there was a diastolic murmur best heard in the typical aortic areas, and in nineteen there was a systolic murmur in the same location, while in twenty cases both murmurs were present. The heart was enlarged laterally in twenty-nine cases and downward in nineteen, respectively. In one of the patients an aneurysm of the right subclavian artery developed while under treatment.

Roentgenographic Findings.—The average width of the aorta, in the twenty-two cases in which orthodiagraphy was employed, was 7.5 cm. The greatest width recorded was 10.3 cm., and the least 6 cm.

RESULTS

Twelve patients are known to be dead, ten living, and thirty-nine untraced.

Dead.—Twelve patients died, of whom five were given arsphenamin, and seven received merely mercury and potassium iodid. Table 1 gives the age, dosage of arsphenamin, number of doses, the year in which the treatment was given, date of death, and the duration of life, in years, after the diagnosis of aortitis was established, respectively.

TABLE 1.—DURATION OF LIFE IN PATIENTS TREATED WITH ARSPHENAMIN

Age	Dose, Gm.	Number	Date	Death	Duration Years
37	.3	2	1913	1917	4.5*
47	.45	3	1914	1919	5.
38	...	2	1915	1915	.25†
34	.3	5	1918	1918	4.5‡
35	.15	5	1918	1919	1.1

Average age, 38. Average duration, 3.07 years.

* Committed suicide because of pain in the chest and general poor condition.
† Aortic arch broadened to 10.5 cm. (by percussion) at time treatment was started.
‡ Case already under treatment four years.

The seven patients treated with mercury and potassium iodid alone may be represented in Table 2, in which are given the age of the patient, and the duration of life after the onset of symptoms and after the commencement of treatment, respectively.

TABLE 2.—DURATION OF LIFE IN PATIENTS TREATED WITH MERCURY AND POTASSIUM IODID

Age	After Symptoms	After Treatment
47	...	.2
50	3.5	.45
51	4.	2.5
52	3.	.5
59	...	4.
21*	5.5	.5
39	2.	1.
45 Average	3.6	1.3

* Note age.

It is suggestive that the length of life among these twelve fatal cases, after establishment of the diagnosis of aortitis is about 3 to 1 in favor of those receiving arsphenamin.

Living.—Of the ten patients whose present condition is known, nine have received intensive treatment, that is, arsenical and mercurial injections. The number of doses varies from three to fifteen, with an average of seven and a half per patient, and the dosage employed ranges from 0.1 to 0.4 gm. with an average of from 0.15 to 0.2 gm. Alternating with this are courses of mercurial injections, such as mercurial (gray) oil, 1 grain for from eight to ten weeks. In addition, potassium iodid is given by mouth.

The tenth patient, whose trouble was diagnosed in January, 1919, is not at present attending the clinic, but her condition is known to be worse.

The improvement noted is in symptoms and not in physical signs. It should be observed that a dilatation of the aortic arch to more than 9 cm. is not, in two cases, incompatible with relative freedom from symptoms and ability to work.

TABLE 3.—PRESENT CONDITION OF NINE PATIENTS

Age	Duration Years	Condition	Physical Status	Width of Arch (by Roentgen Ray), Cm.
43	6	Good*	Able to work	9.1
44	5.5	Good	Able	7.5
47	5	Good	Able	...
50	4	Good	Able	...†
52	4	Good	Able	6.0
26	2.75	Dyspneic	Unable	...
34	1.75	Dyspneic	Unable	...
40	2	Good	Able	9.5
50	1	Dyspneic	Unable	7.5

Average age at which treatment was started, 42.8 years.
Average duration, 3.5 years.
* The term "good" is used in the sense of relatively free of symptoms.
† Condition good, but patient is in an institution under treatment for general paresis.

Untraced.—An examination of the cases in which persons were under treatment for a time but with whom I was unable to establish contact shows twenty-four cases treated five months or less and therefore not deemed worthy of further analysis, and fifteen cases which I shall list (Table 4) according to the physical findings present at the initial examination. The inference, if any, which may be drawn from the findings is the tendency toward better results among the cases in which treatment was started before the more serious physical changes were present.

TABLE 4.—PHYSICAL FINDINGS IN FIFTEEN CASES AT INITIAL EXAMINATION

Doses Arsphenamin	Mercury	Potassium Iodid	Time Observed	Results
(a) Double murmurs: 8 cases.				
2	+	+	7 months	Slight improvement
1	+	+	10 months	Worse
6	+	+	7 months	Unchanged
—	+	+	6 months	Unchanged
3	+	+	2 years	Improved
—	+	+	13 months	Unchanged
—	+	+	5 months	Worse
—	+	+	1 year	Unchanged
(b) Systolic murmur at aortic area and cardiac enlargement to left: 3 cases.				
—	+	+	4 years	Unchanged
—	+	+	3 years	Much improved
5	+	+	5 months	Improved
(c) Cardiac enlargement only: 2 cases.				
5	+	+	3 years	No signs of disease
—	+	+	1 year	Improved
(d) Diastolic murmur and cardiac enlargement: 1 case.				
5	+	+	27 months	Improved
(e) Heart negative: 1 case.				
15	+	+	2 years	About the same

COMMENT

In the study of these records, certain impressions have come to me. For instance, of the sixty-one patients, thirty-nine are not now under treatment at the clinic, and of these, twenty-two were in attendance for less than five months or made only two or three visits. Some, of course, may have continued treatment elsewhere, but I fear far too few. This suggests that insufficient attention has been paid to emphasizing to the patient the importance of adequate therapy. The value of our increased power to diagnose syphilis of the aorta is certainly slight if it does not lead to treatment. Perhaps the following up of these patients, afflicted with a disease of progressive nature but who are not appearing for treatment, can be undertaken by the social service department.

These patients were first under treatment in various departments of the clinic: mostly the skin and syphilis, the neurologic, the medical, and occasionally elsewhere. It is evident, therefore, that those treating patients for the nonvascular manifestations of syphilis should bear in mind the possibility of this complication and, if necessary, refer them for medical examination.

A very satisfactory improvement in the character of the records has been noted since about 1915, making it apparent that the problem is becoming better understood. Thus, data are given as to the Wassermann reaction, supracardiac dulness, and roentgenographic mensuration of the great vessels. Of the latter we are hopeful that in the future there will be more cases roentgenographed a second time or more, as from these, more accurate conclusions may be drawn as to the effect of any particular therapeutic measures and as to prognosis.

The disease is progressive, as evidenced by the fact that in many of the cases one may read of the development of the physical signs from practically normal to a slight diastolic or systolic murmur in the aortic area, later both murmurs, and gradually cardiac enlargement outward and downward.

A slight analogy may be drawn between the diagnosis of appendicitis and of pulmonary tuberculosis, which, formerly tardily made and followed by bad outcomes, now are made in an earlier stage of the affections and with a much brighter prognosis. For example, we have been trained to make the diagnosis of pulmonary tuberculosis before the appearance of the tubercle bacilli in the sputum. Undoubtedly some mistakes are made as a result of this dictum, but who can doubt that the institution of treatment early has been a vast gain? If we can have the courage to diagnose specific disease of the aorta before it and the heart are irretrievably damaged, a long stride will have been taken toward improving its prognosis.

CONCLUSIONS

Specific aortitis is a disease of progressive character and of serious prognosis.

The weight of evidence is against the power of mercury and potassium iodid alone to produce an arrest of the disease. Intensive antisyphilitic therapy is now being administered with promising results.

Every case presenting the symptoms of substernal pain and shortness of breath, not definitely explained by other cause, should be promptly studied as to the presence of specific aortitis. Early diagnosis is imperative.

The cases in this study which have received adequate treatment and in which the present condition is known are as yet too few to justify positive conclusions as to prognosis. After a few more years, another study of the records should obtain material of more value as to the end-results.

510 Commonwealth Avenue.

The Right to Marry.—A careful student of the literature and of the facts of eugenics realizes the complexity of the problem and the reason why we should be cautious about pushing everything to the point of legislative regulation. It is in the interest of civilization to provide principles and customs rather than laws, and to give the plain sense of the individual a chance to develop and to become effective. Give the people the facts and some help to think and the right sources of advice, and there will surely be results.—A. Meyer, *Canadian J. Mental Hygiene* **1**:148 (July) 1919.

A CASE OF RAYNAUD'S DISEASE ASSOCIATED WITH SCLERODERMA

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Up to the present time we are still without definite knowledge regarding the etiology and pathology of Raynaud's disease and allied conditions. The present case offers some interesting features, for which reason it is

Fig. 1.—Nodules occurring over middle joints of fingers.

thought advisable to add it to the literature. It has been frequently noted in Raynaud's disease that there is a hereditary tendency. This, however, has not been determined in the present instance, and from our observations no definite etiologic factor could be established. Occupations and various trades have been mentioned as possible causes; but in the light of more recent investigation it does not seem that they have any definite relation to the disease. In the case here presented the factor of exposure enters; but it is questionable what part it played in the etiology. We have had this patient under observation from February, 1919, until a very recent date.

REPORT OF CASE

History.—The history as given by the patient is practically negative. There is no indication of any similar trouble in the family. Alcoholism is denied; there have been no cases of epilepsy, migraine or other nervous disorders either in antecedents or collaterals.

The patient was born in 1889 in New Mexico. As a child he was healthy and strong. He attended school up to the age of 18, after which he was employed in several positions, always making good money and never being discharged. He has been a moderate drinker, but never indulged to excess; a moderate smoker, and absolutely denies any venereal infection. He is married and has one living, healthy child. His wife is in good health and has had no miscarriages. Prior to entering the service, he was employed as a special officer for a trust company. In November, 1916, he was accidentally shot in the left thigh, making a speedy recovery. There is no history of tropical disease or other serious ailment. He has had no operations. In September, 1917, he entered the service, at which time he was in very good health, going to France in the spring of 1918.

Present Trouble.—The first indication of any trouble appears to have been evidenced by the man early in August, 1918. At that time his organization was in "support," having been in the trenches a few days before. It was during one of these days as he was writing a letter that he noticed a queer feeling in his fingers, and it appeared rather difficult to hold a pencil. On close inspection, he found that the knuckles of both ring fingers appeared somewhat swollen and blue. He gave this condition no special attention, considering it some passing and harmless ailment. August 5, a few days after he had noticed the first trouble, he was gassed and sent to the hospital because of some lung disturbance. He apparently recovered within a few days and was returned to duty, feeling about as well as usual. He believes, however, that following this experience his hands and fingers caused him more trouble. It seems that his hands would become cold and blue, and if he got chilled, the fingers would turn white and become numb. This condition continued for some months. At times it would bother him considerably, and again he would go days without any apparent difficulty. Oct. 7, 1918, he sustained a so-called shell shock, when he was confined to the hospital for one month. He returned to this country early in 1919 and has been under observation since that date.

Following his shell shock in October and while in the hospital, he believes that his symptoms gradually became more marked, that the other joints of his fingers became involved, and would become stiff, cold, swollen, and at times white. During his stay in the hospital, he developed a small mass on the sole of the left foot which was opened and a serum expressed. At the same time the heel of the left foot became black and numb, two small bluish white spots appearing in the center of this black mass. An incision was made, and apparently the discoloration vanished without any sloughing of the skin. He denies that he sustained any injuries to his extremities while in France, and does not believe that he was ever exposed to extreme cold, at least no more so than any of his comrades.

Examination.—The man was well built, and there was no general deformity. The skin and mucous membranes were normal with the exception of the condition here noted. Physical and neurologic examinations were negative except for the findings here recorded. There were to be noted over the joints of the fingers on both hands, as shown in the accompanying illustrations, symmetrically placed indurated nodules which were adherent to the skin, but independent of the bone. These nodules occurred at the junction of the second and third phalanges. These were not painful, but

Fig. 2.—Induration along tendon sheath of middle finger.

appeared to cause a certain stiffness in the joints. Immediately over the masses, there was a slight impairment of sensation to touch and pin prick. There was to be noted in the palms of the hands an apparent thickening along the tendon sheaths of the third fingers which felt firm and indurated. There was also a mass on the sole of the left foot, while on the right foot there seemed to be the beginning of a similar condition. On several occasions, it had been noted that the fingers had become cyanotic, while at others, especially following a cold bath, the distal portions of the fingers had become white, during which time they would feel numb. Objectively, however, no definite change could be determined. The urine examination revealed a faint trace of albumin on a few occasions. The blood Was-

sermann reaction was negative on repeated examinations. The blood count was practically normal. Nasal smears on several occasions were reported negative. A section removed from one of the masses over the fingers showed a marked increase of fibrous and connective tissue, very much in the nature of a fibroma. Along the margins, which were rather vascular in character, many small bundles of connective tissue were noted. There was very little cell infiltration, and no acid-fast bacilli were found.

At the last examination, July 15, it appeared that the patient's physical condition remained about the same. There were occasional headaches, and at times he seemed somewhat restless and irritable. The condition of his hands had gradually grown worse. The nodules had increased somewhat in size, and they were painful and caused considerable stiffening of the joints. As a result of this the thumb of the right hand could hardly be moved. The thickening, which confined itself to the palmar side of the hands and plantar side of the feet, gradually increased, and the mass that had made its appearance on the right foot was now fairly prominent. There were no added sensory changes. A roentgen-ray examination was probably negative.

COMMENT

The diagnosis of this case seems fairly certain. As to etiology, no positive factor can be ascribed. The history of exposure enters very strongly, but with so many individuals experiencing the same hardships, it does not seem fair to assume exposure as a causative factor. Thus, in spite of a negative history one may have to assume a neuropathic groundwork and an unknown exciting cause.

AUTOTRANSPLANTATION OF THE KIDNEY *

CARLETON DEDERER, A.B., M.D., M.S.
BAY CITY, MICH.

In 1917, after devoting several months to an experimental study of the elements of vascular suture, I attempted the autotransplantation of a kidney into the

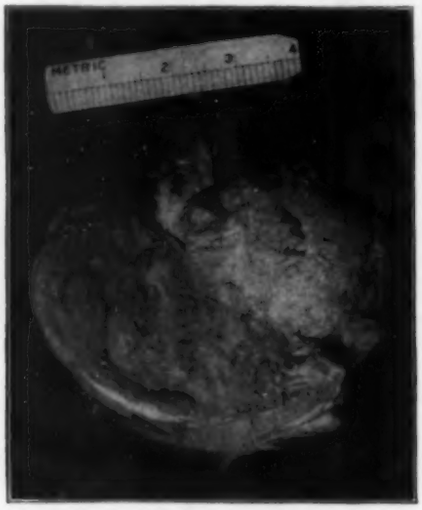


Fig. 1 (Dog B 976).—Autotransplanted kidney, removed from its site of functional activity in the neck on the one hundred and twenty-fifth day.

neck in the dog. After five partially successful operations, complete success was attained.

May 2, 1917, the left kidney of Dog B 976 was transplanted into the neck by uniting the renal artery at its bifurcation with the common carotid artery, and the renal vein to the external jugular vein. Some of the details of this experiment have been published.[1]

Fig. 2 (Dog B 976).—Cross section of the normal ureter on the one hundred and twenty-fifth day after operation; paraffin, hematoxylin and eosin; × 15.

Two weeks after transplantation, right nephrectomy was performed. The dog lived more than four months; it died as a result of hydronephrosis.

EXTRACT FROM PROTOCOL

Dog B 976.—Aug. 18, 1917, three months and sixteen days after the transplantation, and three months and two days after the second nephrectomy, analyses were made for comparison of the stream urine and of that which ran down

Fig. 3 (Dog B 976).—Cross section of the transplanted ureter on the one hundred and twenty-fifth day after operation, showing enormous hypertrophy in the transplanted ureter due to the obstruction at the meatus in the skin; magnified the same as Figure 2.

the animal's neck. The results of these analyses are given in the accompanying tabulation.

* Extract from thesis accepted by the Graduate Faculty of the University of Minnesota in partial fulfilment of the requirements for the degree of Master of Science in Surgery, June 19, 1919.

1. Dederer, Carleton: Studies in the Transplantation of Whole Organs, I, Autotransplantation of the Left Kidney to the Neck with Right Nephrectomy in the Dog, J. A. M. A. 70: 6-9 (Jan. 5) 1918.

August 27, the ureter protruded about 6 mm. Every ureteral contraction shot a stream of urine. Four c.c. of urine could readily be obtained by pressure on the kidney.

August 30, a detailed examination was made of the state of the hydronephrosis:

8:15 p. m., the animal was quiet, not alert. The outside diameter of the kidney in the neck was 7.7 cm.

8:16 p. m., the ureter was opened by a slit about 1 cm. long. This resulted in the escape of more than 25 c.c. of urine, which was tinged with blood from the incision.

8:25 p. m., the size of the kidney (external measurement) was 4.7 cm. including skin and fascia; the kidney was in its proper place in the neck.

8:34 p. m., 5 c.c. of urine were excreted in one minute (57 drops), and a stream about 1 mm. in diameter could be pressed out.

8:58 p. m., the dog was standing quietly, not alert.

9:01 p. m., a specimen of urine (3 c.c.) showed it to be clear and alkaline with a faint trace of albumin, and to contain a few erythrocytes. There were no casts and no epithelial cells; there were triple phosphates.

Fig. 4 (Dog B 976).—Renal artery at site of anastomosis. Paraffin, hematoxylin and eosin; × 50.

9:09 p. m., its weight was 7.8 kg.

9:36 p. m., the weight was 7.7 kg. The dog had lost 0.1 kg. in twenty-seven minutes after the obstruction in the ureter had been slit open.

COMPARISON OF URINE

Surface Urine	Stream Urine
Amber	Amber
Cloudy	Clear
Slightly alkaline	Very slightly alkaline (less change in the litmus paper)
No albumin	No albumin
Few leukocytes	No cells or detritus
Epithelial cells	
Triple phosphates	
Amorphous detritus	

10:26 p. m., the dog came out of the dog house and stood around for a time and then returned. The urine was flowing freely and was clear.

Examination of a specimen of urine (25 c.c.) taken from the hydronephrotic autotransplanted kidney, after the removal of the obstruction to the urinary flow, revealed many erythrocytes (from the incision); albumin (due to hemorrhage); nitrogen of urea and ammonia, 5.69 mg. per cubic centimeter. A specimen taken forty-five minutes later (3 c.c. in one minute) showed a few erythrocytes and triple phosphates, a trace of albumin, nitrogen of urea, and ammonia, 12.18 mg. per cubic centimeter.

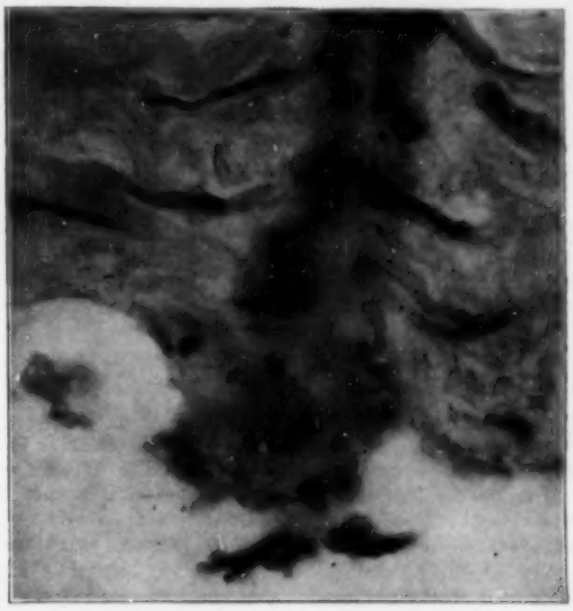


Fig. 5 (Dog B 976).—Silk suture material at the site of anastomosis on the one hundred and twenty-fifth day after renal autotransplant. Paraffin, hematoxylin and eosin; × 900.

After this the dog wasted away, and after an unsuccessful attempt to homotransplant a kidney the animal was killed,

Fig. 6 (Dog B 976).—Cortex of autotransplanted kidney on the one hundred and twenty-fifth day. Paraffin, hematoxylin and eosin; × 500.

Sept. 3, 1917. The transplant was made in one femoral region, and no function resulted, probably owing to venous stasis from unavoidable vein kinking, and venous constriction.

Necropsy revealed that the autotransplanted kidney in the neck had a dilated pelvis and a markedly hypertrophied and dilated ureter (Figs. 1-6).

CONCLUSIONS

In experimenting with the transplantation of a dog's kidney to the neck, the question of hydronephrosis may become of importance. The signs of a developing hydronephrosis are quite characteristic. They consist of an apparent enlargement of the kidney which has been secreting satisfactorily, as can be easily observed in the neck, and hypertrophy of the ureter, which is evidenced by a strong squirting of a stream of urine away from the dog.

DERMATITIS FACTITIA COMPLICATING HYSTERICAL PARALYSIS*

SAMUEL AYRES, Jr., M.D.
BOSTON

REPORT OF CASE

History.—Miss M. G., aged 28, unmarried, white, was referred by her physician to the Massachusetts General Hospital with a diagnosis of osteomyelitis because of pain and paralysis of the leg with a cutaneous lesion involving the foot and leg.

The present illness, as told by the patient, began eight years before when she and her cousin were "fooling" around with a male boarder at the cousin's home. As the patient was walking down the front steps, the man stretched out his foot, tripping her and causing her to fall three or four steps. She remained unconscious all night, and the next morning found that there was soreness in the left hip and sharp localized pain on attempted motion. She felt "sick all over" and was kept in bed for two weeks. Then on attempting to walk she experienced severe pain in the left hip. She felt determined to be up and around, however, and in order to lessen pain, held the left leg stiff and dragged it. The pain persisted and after a time she found that the leg was becoming rigid and could not be bent easily. About a year after the fall her physician applied a wire splint, which extended from the waist to the ankle and immobilized the entire left leg. This was worn continuously for two years, the pain being present only at times. Since wearing the splint she had never been able to walk without crutches, and the leg had been stiff at the knee and ankle and to some extent at the hip. During the previous year the pain had extended from the hip and now involved the entire leg. The pain was described as deep, sharp, and interfering with sleep. Cutaneous sensibility in the entire leg had been impaired almost from the beginning of the present illness.

About three years ago, the patient experienced a nervous breakdown, which her physician said was probably due to the monotony of sitting still and sewing. This began with increasing irritability and crying spells, which later developed into what was called "meningitis." This so-called meningitis came on gradually at first, with pain in the lower spine, which worked up to the head. The entire duration of this meningitis was about two years, the patient being confined to bed continuously for fifteen months. She had many convulsions, usually accompanied by unconsciousness and sometimes by opisthotonos, and she was catheterized frequently. She did not recall whether she had any fever, or any incontinence of urine or feces during convulsions. She never bit her tongue. Toward the latter part of her illness she had frequent severe abdominal pain directly after eating, followed by vomiting. She said that she had many "abscesses" up and down her spine. During those two years of "meningitis" almost daily hypodermic injections of morphin were given by her physicians, and for the latter five or six months sometimes twenty or thirty injections a day (!) both for the relief of pain and for spasms.

During the past ten months the patient had lived at a sanatorium in Maine where she went for the relief of morphinism, and it was from there that she was sent to this hospital for the skin condition, pain in the leg, and vomiting. During the past three weeks she had vomited after nearly every meal.

According to the patient the skin eruption on the left foot, leg and thigh had been present for the past two or three months. Her description of its development is enlightening in view of our own findings:

"It began first on the big toe and looked like purple blotches. These spread over the foot and up the leg, usually purplish at first, sometimes red. Sometimes the blotches would persist for several days, and then little drops of blood would ooze out." The patient stated that on several occasions she had witnessed the drops of blood "ooze out." There was some soreness in the skin lesions, but no pain or itching.

The family history revealed that the mother had a nervous temperament, one paternal aunt had nervous attacks of choking and spasms, and the father had congenital nystagmus; otherwise it was negative.

The patient had had an appendectomy ten years previously; had always had occasional headaches; had had nystagmus since birth; had worn glasses for near-sightedness since the age of 9; had had transitory blurring of vision for ten years; had had double otitis media following measles five years previously; had worn upper and lower false teeth since the age of 18 because her teeth decayed; had had pleurisy during childhood; had always been constipated; had had attacks of vomiting ever since she could remember; had had irregular, painful and scanty menstruations, the last period occurring six months previously; had had nocturia for four or five years, and two years before had passed stones by the urethra accompanied by pain and hematuria; had had occasional fainting spells since childhood, and had never weighed over 100 pounds.

Examination.—The left leg was the interesting feature of the physical examination. The extremity was almost rigid in extension, only slight flexion was permitted at the hip because of pain; the knee allowed only the slightest possible movement, and the ankle was slightly movable. There was complete anesthesia to touch from the hip down; a pin prick, however, was perceived as a tactile sensation. The sensory disturbance was less marked on the posterior aspect of the leg.

Sense of position in the toes was completely lost. The knee jerk was not obtained, and the plantar reflex was sluggish. Reflexes elsewhere were normal. Over the dorsum of the foot, extending just beyond the base of the toes and upward over the medial, anterior and lateral aspects of the lower leg, also on the inner aspect of the heel, there were areas of vertical, parallel, short scratch marks, some with adherent crusts of dried blood. Over the foot, especially, there was a diffuse background of dull red or purplish discoloration, which, however, was absent higher on the leg. On the lateral aspect of the thigh there was a discrete area, the size of a half dollar, consisting of vertical parallel scratches without any discoloration.

The skin elsewhere was normal; there were no scars or other evidence of abscesses over the spine such as the patient described. There were no other neuromuscular disturbances except for the nystagmus, which was congenital, and paralysis of the external rectus muscle of the left eye, of uncertain duration. The remainder of the physical examination was essentially negative.

Roentgen-ray examination of the involved leg disclosed some atrophy of all the bones but no involvement of any of the joint surfaces. The systolic blood pressure was 155, diastolic 100. Temperature and respiration did not vary from normal. The pulse averaged 90. The urine showed a very slight trace of albumin, many white blood cells and epithelial cells, but no casts. The Wassermann reaction and the white count were not taken, but there is no reason to believe that they would have added any information of importance.

A steel phonograph needle was found in the patient's hand bag. On the point of the needle there was a small red

* From the Department of Neurology, Massachusetts General Hospital.

stain, which was demonstrated both chemically and morphologically to be blood. When the stain was dissolved in physiologic sodium chlorid solution, hemin crystals were obtained, and red blood corpuscles could be seen under the microscope.

When confronted with our evidence the patient denied that the dermatitis had been self-inflicted. The facts, nevertheless, are interesting, especially the objective appearance of the skin with the obvious scratch marks, as contrasted with the patient's description of the development of the lesions.

Treatment and Result.—Our treatment consisted largely of psychotherapy, together with active exercise and passive movements. Dr. Robert F. Loeb, who had the immediate care of the patient during most of her nine days' residence in the hospital, explained in detail the nature of her disorder, and endeavored to rationalize it for her. We were unsuccessful in discovering any repressed emotion as a cause for the hysterical manifestations during the past eight years, but from the circumstances attending the onset, it is not improbable that the patient told us only part of the story. However, we did not insist on learning the details, but advised her to confide in some one who was sympathetic and who could be trusted whenever situations arose with which she was unable to cope. In spite of her "severe pain" we found it necessary to give chloral hydrate only once, and acetylsalicylic acid only on a few occasions. No treatment aside from cleanliness was needed for the skin lesions. The patient, herself, requested not to be given morphin. She seemed intelligent and desirous of getting well.

It is always gratifying to know that our measures have been successful. The patient was sent back to the sanatorium in Maine, and both she and her physician were told that there was no organic trouble and that she would recover complete use of her leg by following rational treatment—active exercise, passive movements, massage, and above all a proper mental attitude, realizing that her paralysis was due to functional inhibitions and that the skin lesion was self-inflicted, even though she herself may not have been actively conscious of the act. Two weeks later one of the nurses of this hospital received a letter from her, which reads in part: "I'm getting on fine—can get about my room without crutches, although I often lose my balance and my strength leaves me, but I shall persevere until I can do better."

Dermatitis factitia produced by a steel phonograph needle.

COMMENT

This case illustrates a condition that is well recognized, but not as generally, apparently, as it should be. It brings out the contrast between treatment and mistreatment. In other words, a patient who has been an invalid, unable to walk without crutches for eight years, finds herself in the course of three weeks under rational treatment perfectly able to use her "paralyzed" leg and to walk without crutches. This patient undoubtedly has a neurotic predisposition as shown both by her family history and her past history. It is quite understandable how a mental conflict lodging in such a soil can produce the hysterical picture described.

The lesson to be drawn from the cutaneous lesions is that, first, the appearance of the lesion is more to be trusted than the history, and second, a lesion that is obviously artificial in appearance is probably artificial in etiology. Such self-inflicted injuries may be done to excite sympathy, to escape duty, to assist in winning damage suits, or occasionally, as is probable in this case, they may be done in a state of amnesia or semi-consciousness.

As illustrating that the neurologic condition described above is not rare, a companion case was recently discharged from this hospital relieved of a spastic paraplegia with anesthesia of over two years' duration. The history, examination, and treatment were essentially similar to the foregoing case, except that there were no cutaneous lesions. On entrance the patient was entirely unable even to stand; she did not feel the floor under her feet. After remaining in the hospital two months, she was able to walk unassisted, and sensation had returned. A few weeks after discharge a letter was received in which she stated that her improvement had continued, and that she could go up and down stairs and could walk almost as well as ever—and this after two years of invalidism, treated by her local physician for "incurable spinal trouble."

Striking the Source of Infection.—A knowledge of the physical conditions and the regulation of the personal hygiene of the individuals making up a unit or closely associated group is fundamental in all community health activities. It is the custom nowadays for a municipality or state to pass drastic laws regulating garbage disposal, the location of corrals and pig styes, the cleanliness of slaughterhouses, and the distribution of milk and foodstuffs. . . . While such laws may be rigidly enforced, a typhoid carrier, a victim of tuberculosis, or one who has a mild case of any one of the serious communicable diseases, may sow these diseases broadcast. One tuberculous person or typhoid carrier in a community may do as much harm to the individuals therein as lax enforcement or even nonrecognition of the laws pertaining to sanitation. It is not difficult to see the incongruousness of a regulation which requires the screening of foodstuffs and at the same time makes no provisions whatsoever for determining whether the person who prepares the food or distributes it is a typhoid carrier—John Sundwall, *Pub. Health Rep.*, Nov. 7, 1919.

Clinical Notes, Suggestions, and New Instruments

EMPHYSEMA OF THE CECUM

REPORT OF A CASE

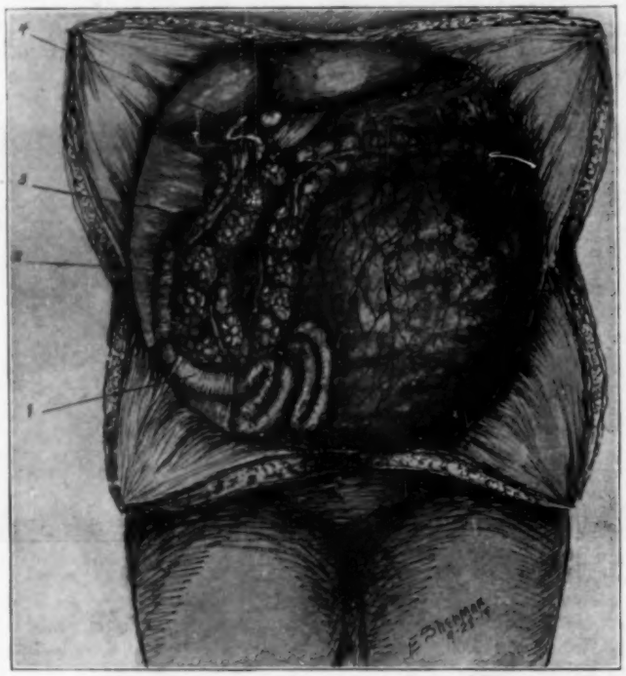
ELMER D. TWYMAN, M.D., KANSAS CITY, MO.

History.—Mr. H. C., aged 22, white, American, a coast guard, permit No. 1,574, was admitted to the U. S. Marine Hospital, Port of New York, Nov. 9, 1918, complaining of a dull pain in the right iliac fossa. The complaint had lasted for four days; he was nauseated but he had not vomited. The dull ache, which had no connection with eating, was continuous. The patient complained of diarrhea.

There was nothing significant in his past illnesses or family history. He denied venereal disease. His parents and three sisters were living and well.

Physical Examination.—The only abnormalities noted were diffuse tenderness in the right hypogastric region and a slight rigidity of the rectus muscle. No signs of tenderness were elicited by pushing gas around in the colon; moderate tenderness was noted in both lumbar regions posteriorly. There was gross abdominal distention; but deep palpation revealed a mobile mass, the size of a small kidney in the right iliac fossa. It was of a doughy consistency suggesting a fecal impaction. Movement was elicited by manipulation and by the patient's breathing.

Operation.—Under ether, a high rectus incision revealed a mass, injected with blood, bound with adhesions, and distended in the subperitoneal layers by bubbles of gas. It was crepitant to the touch, like lung tissue. At one point on the outer side of the cecum, among a mass of subperitoneal gas bubbles, was something that gave an appearance of milkiness, such as a chylous or a leukocytic infiltration. The small fatty tags were highly distended with small gas bubbles. After the separation of a few adhesions of the omentum to the colon and of the colon to itself, the mass was thus analyzed:



Emphysema of the cecum: 1, ileum under a band; 2, emphysema of the cecum; 3, ileocecal junction; 4, appendix and bands of adhesions.

The transverse colon was normal. At the hepatic flexure was a sharp angulation marking the limit of the gaseous injection. Proximally the ascending colon was markedly increased in size and apparent thickness of its walls (three times). The ascending colon was followed caudad to the left, and downward to the umbilicus. At this point, reversing its direction, but not so sharply angulated, it was followed into the cecal portion upward and to the right as far as the gallbladder. It was seen that the cecum and lower portion of the ascending colon lay side by side with the proximal portion first described, but in the antiparallel direction. The appendix was given off at the extreme distal end of the cecum, lying in immediate contact with the gallbladder. It was inflamed, but no more so than the cecum. It was not crepitant. It was kinked into a double U by fibrous bands in its mesentery arising profusely from the tissues of the renal sulcus. Cutting the appendical mesentery and a number of bands in the peritoneum to the outer side of the cecum permitted the restoration of the cecum and ascending colon to their ordinary position. The fixed portion of the iliac mesentery was then sought, and the terminal 8 inches of the ileum isolated and followed caudad to the ileocecal valve. It was found that 4 inches cephalad to the valve, the ileum was bound down broadly and tightly over the psoas muscle for an inch and a half. The appearance was of a congenital arrangement plus additional bands of inflammatory origin or due to traction. The ileocecal valve lay on the outer and distal side of the loop described by the cecum and ascending colon. The arrangement was such that the terminal portion of the ileum from the ileocecal valve to the ileopsoas attachment was under tension, which tended to increase with functional movements of the colon. This tension was completely relieved by the division of the bands and the replacement of the colon in its normal position. The two angulations of the colon appeared also to be sufficiently relieved. The degree of distention of the ileum cephalad to the psoas adhesion was judged to be so small and the symptoms, that is, the obstructive symptoms, so mild as not to justify a separation of this broad and well functionating adhesion, especially considering the dangerous proximity of the iliac vessels. No attempt was made to cover the raw surface on the outer side of the colon or to dictate the final position of the cecum other than its replacement by hand. The appendix was removed and the stump buried. The wound was closed without drainage. Three small bits of gaseous injected tissue were removed and sent to the laboratory, and direct smears and aerobic and anaerobic cultures ordered.

Laboratory Reports.—The first smear, stained with methylene blue, contained many polymorphonuclear leukocytes with intracellular diplococci. In the second smear, fewer numbers were observed and the diplococci were stained positive by the Gram method. All cultures were reported negative after one week's growth. As the laboratory was rushed with work incident to the epidemic, I have not regarded this result as legitimate but simply as an unavoidable misfortune.

Progress of the Case.—The patient left the house in two weeks. On full diet, he experienced no trouble. He stated that he was then conscious that there had always been something wrong with his abdomen. The mass had disappeared, and there was little postoperative abdominal reaction.

416 Argyle Building.

Experimental By-Products.—The first voyage of Columbus was an experiment. It is not always that experiments may be performed in the laboratory, for many of them must be on a national or world-wide scale, as is true today of many social experiments. Sometimes the by-products of an experiment are themselves of great value, an illustration of this is Columbus' discovery of the variation of the magnetic declination. Not always, of course, are the by-products of the main experiment so evident as they were in this case of Columbus' first voyage; nor are they so overshadowed by the importance of the main result. In such by-products may be the greatest value of the experiment. While the result of the main experiment is usually the reward of clear thinking and precise manipulations of the experimental apparatus, the by-products are usually the reward of a comprehending observation.—Mills, "The Realities of Modern Science."

A HOME-MADE ORTHOPEDIC TABLE

LLOYD M. BERGEN, M.D., HIGHLAND PARK, ILL.

There is often need of an orthopedic table where the small volume of work does not justify the purchase of elaborate

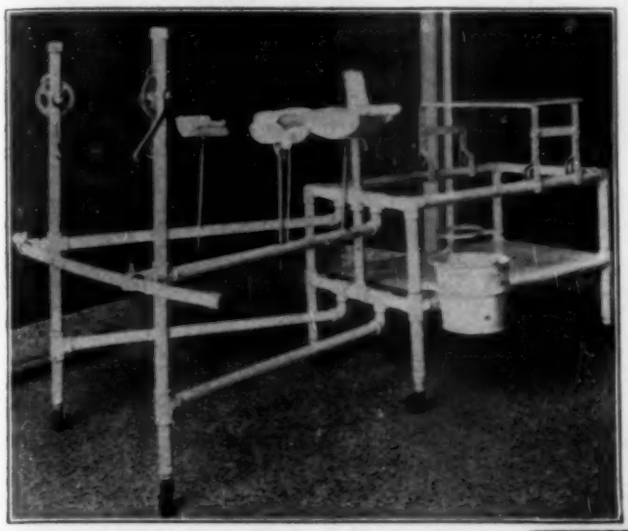


Fig. 1.—Sacral and shoulder supports removed with table set for roentgenography or operation.

and expensive apparatus; the home-made table here illustrated will supply this need.

I made a small model in a few hours, and the table itself was constructed by the janitor of the Highland Park Hospital, chiefly from pieces of scrap piping. The illustrations demonstrate clearly the construction and application.

The patient being placed in position, the small steel cables are attached to the ankles, and traction is applied. The four padded leg supports are then dropped out of the way by simply pulling out the four pins with which they are transfixed.

The post supporting the sacral rest is made of slightly smaller piping, slides easily through the "four-way" fitting, and rests in the T socket below. In this way the post and saddle are

Fig. 2.—Shoulder, sacral and leg supports in place to receive patient.

simply lifted out when the apparatus is to be used as an ordinary table. The chest and shoulder support is made of wrought iron strips with ordinary ball bearing roller skate wheels, obtainable in any good hardware store. The ratchet wheels are part of a Ford motor car, and cost one dollar apiece at the dealer's. They require some turning down in a lathe, as in the original they are too thick to go through the slots in the piping.

The cross bar for arm extension rests on the table frame, and bolts are dropped through perforations in the two pipes. It is lifted off when not in use.

SEROUS MENINGITIS FOLLOWING INJECTION OF ANTITETANIC SERUM

OSCAR BERGHAUSEN, M.D., CINCINNATI

A boy, aged 3½ years, who had been in the best of health, stepped on a nail two weeks before I saw him, Sept. 26, 1919. The wound was indifferently treated by one physician so that Dr. George Sikes of Pleasant Ridge was consulted two days later. The wound was then opened, cleansed and properly cauterized. The little boy was given 2,000 units of antitetanic serum; the wound healed perfectly. A week after the serum was given, a typical serum rash developed but soon subsided. Four days later the child was playing in the yard as usual, when he began to drag the injured leg. That afternoon he was taken sick rather suddenly, and fever developed, but there was no nausea or vomiting. The mother noticed that the child could not move the injured (right) leg or the left arm. He seemed to hold his head toward the right side. Dr.

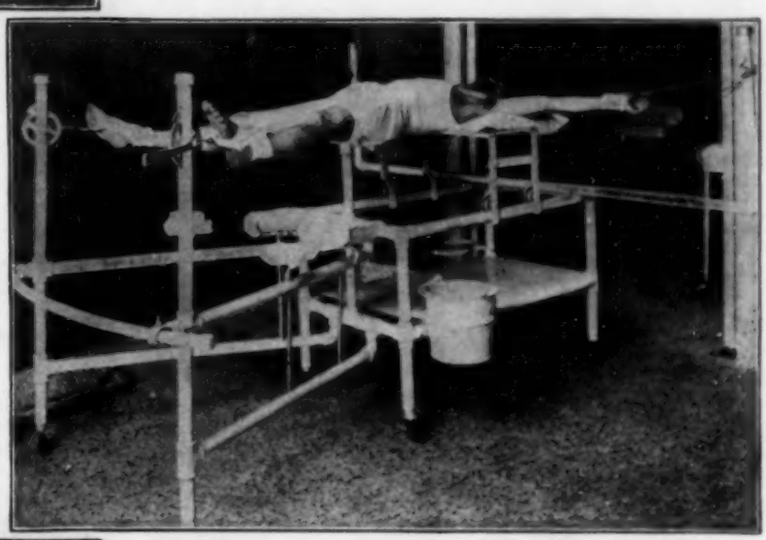


Fig. 3.—Patient suspended, with leg supports dropped out of the way.

George Sikes was called and decided not to use antitetanic serum, giving the child a dose of castor oil instead. The next morning the child was no better so it was brought to a hospital in this city where I saw him just two weeks after the original injury.

The child was crying. The skin was covered with a profuse reddish macular eruption, confined mostly to the lower extremities. He apparently did not move the left arm. The pupils were equal; there was no involvement of the cranial nerves. The heart and lungs were apparently normal; the examination of the abdomen was negative. The child held himself rigid. There was Kernig's sign, but no opisthotonos. The temperature was about 102; the pulse was rapid. I told the family that in my opinion the symptoms could not be due to tetanus, and expressed the opinion that it possibly was due to the injection of horse serum, although the typical serum rash had disappeared four days previously. In the afternoon the temperature rose to 104; the pulse was 128, and the respiration 36. While sleeping, the child would twitch its face. I had Dr. Robert Ingram see the child with me.

In addition to the symptoms and signs that I have mentioned, he found an ankle clonus of both legs, mostly right, and an edema of the right upper lid. He diagnosed the condition as cerebrospinal meningitis according to the syndrome,

the cause of which was unknown. He advised a spinal puncture. The fluid came out under great pressure, was clear, contained no cells, no increase in globulin, and gave a negative Wassermann reaction. Within two hours' time the child was quiet, fast asleep, and the temperature was nearly normal. All symptoms apparently had disappeared, the child could move both legs and arms, and the edema was decreasing. Within two days' time the child apparently was well, and went home. Since then it has been free from a recurrence of the symptoms. To my mind the foreign protein (horse serum) had produced an anaphylactic reaction which was later complicated by the development of an acute serous (edematous) meningitis.

19 West Seventh Street.

FOREIGN BODY IN RECTUM

Edward A. Diggins, M.D., San Francisco
Surgeon, U. S. Army Transport "Logan"

The note on a glass tumbler in the rectum[1] brings to mind a somewhat similar case that I observed in 1907:

A marine engineer, after an exploit on the "Barbary Coast" in San Francisco, was the victim of rowdy companions. Next day, while searching within the rectum to determine the cause of certain unusual symptoms, he located something that felt like the edge of a glass. Manual manipulations failed to dislodge the intruder, so he tried thumb forceps. The result was that a particle of the edge of the glass was snipped off with each grasp of the instrument, leaving a serrated edge, as shown in the accompanying illustration, around the top of the glass.

Examination in the knee-chest position, with the vaginal speculum and long dressing forceps, revealed the base of the glass 9 inches within the rectum.

Pieces of gauze bandage were dipped in plaster-of-Paris paste and inserted with long dressing forceps repeatedly,

Glass with fractured edges, and glass packed with plaster-of-Paris gauze overlapping the serrated edges. The tail end of the gauze packing served as tractor.

until the glass was packed overfull. The last strip was sufficiently long to leave more than 12 inches free for traction. Within half an hour the plaster was solid. As traction was made, small particles of loose, hardened plaster preceded the glass, and fragments and splinters were incorporated with them. No difficulty was experienced in bringing the glass to the sphincter. This was dilated with the vaginal speculum, and the foreign body was withdrawn with little resistance and no bleeding.

The object proved to be a common 5-ounce "high ball" glass. The victim returned to duty next day. There was no after-pain or complications.

1. Smiley, Orvall: A Glass Tumbler in the Rectum, J. A. M. A. **72**: 1285 (May 3) 1919.

A CASE OF BILATERAL CONGENITAL FUSION OF THE RADIUS AND ULNA

Julius Kaufman, M.D., Brooklyn

This case is, I believe, of sufficient interest from a developmental standpoint to warrant its being recorded. Whether

Fig. 1.—Lateral view of left forearm.

Fig. 2.—Lateral view of right forearm.

it is just one of the freaks of development that we encounter so often, or whether it has some atavistic significance, I am not prepared to state.

Private A. J. L., white, aged about 24,[1] was admitted to our hospital area at Mars-sur-Allier, France, complaining of "joint trouble." As long as he could remember, he had had only limited motions in both his forearms. The condition had been becoming progressively worse. Flexion and extension were somewhat limited and painful. There was only a minimum of pronation and supination.

Clinically, both the arms were held in the position of midpronation. Extension and flexion of the forearm on the arm was but little limited, the patient complaining of slight pain during these motions. That there was true ankylosis could easily be inferred by the complete loss of active and passive pronation and supination. Actions that involved these motions were compensated for by using the shoulder joint.

Roentgenograms of both forearms revealed an exactly symmetrical fusion of the upper extremities of the radius and ulna, with rather incomplete development of the radial head. Following the course of the radius from below upward, with the forearm fully extended on the arm (by means of stereoscopic plates), one saw that the radius crossed the ulna from within out, anterior to it, fusing with it in its upper extremity, the radial head lying at about the level of the capitellum, but slightly posterior to it.

There can be little doubt that the condition was a congenital one. Its long-standing history, the absence of trauma or any other etiologic factor, and the symmetrical involvement all point to this.

1. It was impossible to obtain complete data, owing to the patient's immediate evacuation from this area.

Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY. A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

USE AND ABUSE OF CATHARTICS *

(*Continued from page 1769*)

AGAR

Having shown that there existed a variety of constipation, characterized by the passage of a scanty amount of fecal matter in the form of dry, hard lumps, and that this was due to excessive bacterial digestion of cellulose, Adolf Schmidt[1] suggested the use of agar, well known as a bacterial culture medium employed because it is not liquefied or digested by micro-organisms. This substance, a dried mucilaginous material (hemicellulose) extracted by hot water from certain Japanese algae, is almost indigestible in our alimentary tract. Hence it passes through the intestine, adding bulk to the feces and softening them by virtue of its property of retaining moisture.

Agar generally occurs in bundles of translucent pieces; but is best obtained for medicinal use in the form of shreds or coarse powder. When finely pulverized, it may produce colic. It has a slight odor and an insipid mucilaginous taste; it is insoluble in cold water, but slowly soluble in hot water, a 1.5 per cent. solution producing quite a stiff jelly on cooling.

Agar is indicated in those cases of chronic constipation in which it is considered desirable to increase the bulk of the feces, and in which bran is not well borne or does not act well. Persons in whose intestine cellulose is digested to an excessive degree are likely to find bran not only deficient in activity, but, like other fermentable cellulose, troublesome by the production of flatulence. For such, agar may be just the right dietetic corrective. As it is deficient in influence on peristalsis, it is likely to be useless in atonic constipation, such as in that of the aged; on the other hand, it may be used in spastic constipation and in mucous colitis.

As in the case of other evacuants acting chiefly in a physical manner, agar must be taken in large and liberal doses, and regularly for a long time. A dose of from 30 to 40 gm. may be required. Usually the patient is directed to take one or two heaping teaspoonfuls once a day, preferably with his breakfast. From two to four days may elapse before an effect manifests itself. If none appears, the patient should increase the amount ingested by taking additional doses with other meals. As much as four tablespoonfuls and even more may be needed. In such a case, it is best to employ some other evacuant instead, or in addition. Children of 4 or 5 may require two teaspoonfuls (4 gm.) daily. Once regularity has been established for a week or two, the patient should tentatively reduce the dose, to discover the smallest amount required by him; and this may have to be continued many months, perhaps indefinitely. As it, therefore, is really an article of diet, we must invoke the art of cookery to make the patient relish taking the remedy, or it will be discarded sooner or later, even though it produces a satisfactory result.

Adults usually prefer to take it in shredded form (cut agar). This may be eaten with cream and sugar. Many prefer to eat it mixed with gruels or any of the ordinary cereal breakfast foods. It may also be added to cooked fruits, vegetables or thick sauces. For the adult, however, it should not be cooked with the food. Agar may be used, instead of bran, in the various cooking recipes given in connection with bran. When used in the making of cakes, biscuits or cookies, it should always be added just previous to baking.

Children require agar in finely granular or liquefied form. When shredded agar is given in their food, many of them will carefully separate each piece in their mouth and spit it out. To liquefy agar, it must be boiled with water until it has become thoroughly homogeneous. Several hours' hard boiling may be required. Thus it may be cooked up with cereal or in soup; but such dish must not be allowed to cool before it is eaten, otherwise it will gelatinize. Of course, agar may be eaten in the form of jelly. Strauss[2] gives this recipe for an agar jelly:

Wash 5 gm. of agar in cold water, then soak in hot water, and boil with from 300 to 400 c.c. of water until clear. Strain through gauze, and add any one of the following flavorings: wine, sugar and lemon peel, coffee, cacao, cream, yolk of egg, etc., and set aside to cool.

The limitations of agar as a laxative are perhaps best shown by the fact that Adolf Schmidt, who first proposed its use for this purpose, found it necessary to make it more reliable in its activity by adding 25 per cent. of aqueous extract of cascara sagrada. This combination of Schmidt's is being promoted as a proprietary medicine. One of the objections to such a combination is the impossibility of varying the relative dosage of its ingredients. If it is found necessary to supplement agar with an active cathartic, let the cathartic be given separately. Then it will be possible to adjust the dosage to the needs of the individual patient; and it will also be possible gradually to reduce the dosage of the active cathartic until the patient is finally weaned from it. While it may be admitted that little, if any, harm could come from using agar indefinitely, it is certainly true that the indefinite consumption of cascara sagrada, or of any other active cathartic, leads to habituation of this drug.

(*To be continued*)

* This is the ninth of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

1. Schmidt, Adolf: Neue Beobachtungen zur Erklärung und rationalen Behandlung der chronischen habituellen Obstipation, München. med. Wchnschr. **52**: 1970 (Oct. 10) 1905.

2. Strauss, H.: Obstipation und Diarrhoe als Objecte der Diatsbehandlung, Deutsch. med. Wchnschr. **39**: 1537 (Aug. 7) 1913.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

HOYT'S GLUTEN SPECIAL FLOUR.—A gluten flour containing protein, 80 per cent., fat, 1 per cent. and starch, less than 10 per cent.

Actions and Uses.—Hoyt's gluten special flour may be given when a diet relatively free from carbohydrates is desired, especially in diabetes. It does not make a satisfactory bread, but may be used to prepare muffins, flat cakes or gruel.

The nutritive value of 500 Gm. of Hoyt's gluten special flour corresponds approximately to 1,810 calories, of which 1,640 are due to protein, 45 to fat, and 125 to carbohydrates.

Manufactured by the Pure Gluten Food Company, Columbus, Ohio. No U. S. patent or trademark.

Hoyt's gluten special flour is prepared by washing a wheat-flour dough with cold water until the gluten content of the wheat has been as completely freed from starch as is possible by mechanical means. The residual mass is then dried and ground.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Five dollars per annum in advance

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SATURDAY, DECEMBER 13, 1919

The Current Medical Literature and other departments in this issue are curtailed, owing to the shortening of the hours of labor to comply with the ruling of the fuel commission. The shortening occurs almost wholly in the middle section of The Journal—the last form to go to press. The precipitate nature of the ruling is responsible for this unevenness. Sympathetic readers will pardon the curtailment as well as any delay in the receipt of The Journal.

DIET AND INTESTINAL BACTERIA

There are many indications in the recent literature of alimentary bacteriology leading to the conclusion that diet can play a significant rôle in determining the bacterial flora of the intestine. The attempts to establish specific types of micro-organisms in the enteric tract by feeding bacterial cultures have not proved successful in the way that the enthusiasts of the Metchnikoff school were led to expect. Despite the positive claims of the manufacturers of such products, the preponderant view at present is against the probability of success in the efforts to implant strains of bacteria in the intestine by feeding cultures of them. On the other hand, there is growing evidence that the flora in the bowel can be profoundly altered by changes in diet.

Torrey has demonstrated the striking effect of various high-calory diets on the fecal flora of typhoid patients. In some cases the addition of from 250 to 300 gm. (8 to 10 ounces) of lactose a day to the other ingredients of the ration brought about a transformation of the fecal flora from the ordinary type to one strongly dominated by *Bacillus acidophilus*. In more recent investigations on dogs, he[1] has further established the promptness and uniformity with which they respond to diet by changes in their predominant alimentary bacteria. As Mendel[2] has recently pointed out, the determination of the conditions under which desired intestinal floras can be established opens up a fruitful field for the clinical investigator. This is further emphasized by the new observations of Porter, Morris and Meyer[3] of the University of California Medical School. They show that children whose diet is well balanced and whose nutrition is normal have an intestinal flora consisting of fermentative and putrefactive types of micro-organisms without preponderance of either; but when large quantities of cow's milk are fed, the flora becomes more complex and tends to include a predominance of facultative putrefactors. Putrefactive bacterial types are, furthermore, characteristic for children who suffer from certain forms of alimentary intoxication with malnutrition.

According to the San Francisco pediatricians, the return of such children to normal health is coincident with a regression of the intestinal flora toward predominantly fermentative types. Such a change, they further aver, can be brought about in the infant by withdrawing animal protein and persistently feeding large amounts of lactose and other carbohydrates—not, however, by mere administration of cultures of *B. acidophilus*. Since the progressive cessation of the symptoms of intoxication and a return of toxemic patients to nutritional health coincides, to cite Porter, Morris and Meyer, with the recognizable dominance of a fermentative flora, the therapeutic value of suitable dietary regulations is obvious. For years it has been customary, in the management of infants suffering from putrid diarrhea, to furnish cereal decoctions or carbohydrates like lactose and maltose to them. The wisdom of such dietotherapy in suitable cases is being established on a scientific basis by some of the studies like those to which we have just referred.

BOTULISM: I

The striking symptoms and high fatality of botulism have given to this disease, as to rabies, an interest and a conspicuousness far beyond its relative importance as a cause of death. Two recent fatal outbreaks of "food poisoning," one in Ohio, the other in Michigan, have been attributed, it seems with justice, to botulism intoxication from ripe olives packed in California, and these tragedies have increased the uneasiness felt by some persons about the dangers from this cause. American investigators in the past few years[4] have added much to our knowledge of

1. Torrey, J. C.: The Regulation of the Intestinal Flora of Dogs through Diet, J. M. Research **39**: 415 (Jan.) 1919.
2. Mendel, L. B.: Food Factors in Gastro-Enterology, Am. J. M. Sc. **158**: 297 (Sept.) 1919.
3. Porter, L.; Morris, G. B., and Meyer, K. F.: Certain Nutritional Disorders of Children Associated with a Putrefactive Intestinal Flora, Am. J. Dis. Child. **18**: 254 (Oct.) 1919.
4. Burke, Georgina S.: The Effect of Heat on the Spores of Bacillus Botulinus: Its Bearing on Home Canning Methods, Part 1, J. A. M. A. **72**: 88 (Jan. 11) 1919. The Relation of Forage Poisoning to Botulism, editorial, ibid. **73**: 611 (Aug. 23) 1919; Spoiled Canned Food, **73**: 914 (Sept. 20) 1919. Thom, Charles; Edmondson, Ruth B., and Giltner, L. T.: Botulism from Canned Asparagus, ibid. **73**: 907 (Sept. 20) 1919. Weinzirl, John: Bacteriology of Canned Foods, abstr., ibid. **72**: 1031 (April 5) 1919. Bacillus Botulinus Poisoning in Detroit, General News, ibid. **73**: 18 (Nov. 1) 1919.

botulism, and several recent articles, especially, have helped to define the conditions under which this serious form of food poisoning may take place.

It has been shown that the name of botulism, or sausage poisoning, is quite inappropriate to this form of bacterial intoxication as it occurs in the United States. Canned string beans, asparagus, corn, apricots, ripe olives and cheese have been implicated at various times and places, while meat products have seldom been causally connected with such cases. Apparently the majority of outbreaks on record in this country have been due to household canned foods, and one of the points in dispute has been whether a similar danger is to be feared from factory canned foods. The difference of opinion among workers in this field is exemplified by correspondence recently appearing in THE JOURNAL from two correspondents.[5] Some of the points raised in the correspondence are of general interest.

There is no doubt that the early statements of van Ermengem, the discoverer of *B. botulinus*, about the low heat resistance of this organism are incorrect if applied to all conditions or all strains. Most of the American strains, so far from being killed by heating to 80 C. for one hour, will withstand much higher temperatures, some even resisting the temperature of boiling water for a considerable period. The history of the canned foods implicated in botulism poisoning shows that the spores of *B. botulinus* pass through the ordinary processes of household canning without destruction. It seems to be a fact that, as far as recorded cases go, only two or three instances of botulism poisoning have been traced to factory canned goods, as against a much larger number attributed to foods prepared in the household. Whether this difference is due to the superior germicidal efficiency of factory methods of heating or to the circumstance that spoiled or swelled canned goods are more likely to be eliminated in the course of ordinary trade procedures or to a combination of these factors cannot be definitely established at this time. It does not seem, however, that we are justified in asserting that a danger is entirely absent because it is exceedingly slight.

The main point of difference between the correspondents mentioned seems to hinge on the interpretation given by Weinzirl to the results of an extended bacterial examination of canned foods undertaken in the Department of Preventive Medicine at Harvard University.[6] The investigation forms part of a comprehensive study of canned foods, which is being carried out under the direction of Dr. M. J. Rosenau with the aid of a grant supplied by the National Canners Association. The conclusion drawn by Weinzirl to which particular exception has been taken is that "food poisoning organisms, such as *B. botulinus, B. enteriditis*, etc., are not found in commercial canned foods."[7] It is unfortunate that this matter was not allowed to rest in the form in which it appears in the summary of results:[8] "Members of the paratyphoid-enteriditis group were not found, nor was *B. botulinus* ever isolated." This plain description of findings becomes transmogrified by Weinzirl in his "conclusions" into a general statement which would hardly be justified even by a more extensive investigation than that here under discussion, and which in its present form might lead to serious misinterpretation.

On the other hand, it must be admitted that a rather too positive tone pervades portions of Mrs. Burke's letter. It is hardly justifiable to insinuate, however vaguely, that a group of workers is influenced by any consideration other than the desire to seek the truth and find it.

It seems hardly fair or wise to cast discredit on the work of a group of scientific investigators, comprising some of the best known names of the country, apparently on the ground that the money for the work has been provided by a commercial association. The word "commercial" is frequently used as a general term of opprobrium, but, as Roosevelt would have said, there is a "good" as well as a "bad" commercialism. It is not our understanding that money was given to Harvard University for the purpose of "exonerating" factory canned goods from any charge whatsoever, but simply for the purpose of discovering actual conditions and, so far as those conditions might be undesirable, of discovering and applying appropriate methods of improvement. It can hardly be assumed that the officials or any of the members of the National Canners Association would favor for an instant a plan to ignore or overlook any danger of botulism poisoning that might exist. Their interests, "commercial" as well as simply human, lie wholly in the direction of discovering what the danger is, how it arises, and how it can best be avoided or overcome. Denial or concealment is the last policy sound business judgment would dictate.

5. Burke, Georgina S.: Spoiled Canned Foods and Botulism, J. A. M. A. **73**: 1078 (Oct. 4) 1919. Weinzirl, John: Ibid. **73**: 1789 (Dec. 6) 1919.

6. Weinzirl, John: The Bacteriology of Canned Foods, J. M Research **39**: 349 (Jan.) 1919.

7. Weinzirl, John (Footnote 6), p. 411.

8. Weinzirl, John (Footnote 6), p. 409.

SECURING OFFICERS FOR THE ARMY MEDICAL CORPS

The Military Committee of the House of Representatives, it is reported, has agreed on a peace-time regular army of 300,000 men and 18,000 officers. This number of officers, in excess of the actual needs of the army, was decided on in order to provide instructors for the national guard and reserve officers' training corps units. Probably, therefore, from 1,800 to 2,000 regular medical officers will be needed. The problem of securing young men for the Regular Medical Corps has long been a difficult one to solve; the need for

a larger corps merely emphasizes the problem. At the present time the difficulty is increased because of the low pay, although undoubtedly this will be removed by a bill now before Congress which provides for a 30 per cent. increase in pay and emoluments. This means compensation which will compare favorably with the income of the majority of civilian practitioners. But the increase in pay alone will not be enough to attract a sufficient number of volunteers to the service under present educational conditions.

Many state licensing boards are requiring a year's hospital internship in addition to the four years' professional training, and an increasing number of medical colleges are requiring a fifth year of hospital work before granting the degree. This hospital year is a good thing: so far as the public is concerned, one of the most important advances in medical education. However, young physicians with such training are likely to see more allurements in private practice than in the army. In addition, there is the worry and work of passing the army examinations. Hence, if the army is to depend on this class of well-trained men to fill its medical corps—and it is this class that is wanted—it will take a long time before the Medical Corps will secure its full quota under present methods of taking in these men.

But why should the army wait for this complete training? Why should it not take the man when he has completed his fourth year and give him his hospital year as a noncommissioned officer in the Medical Department? The Walter Reed Hospital offers a splendid opportunity for such work as the hospital year is supposed to require; in addition, there are the available division hospitals. If such a method of recruiting were adopted, it would be a double advantage to the student: (1) He would be taken from an A-grade medical school on his record in that school, without having to go through the ordeal of an examination—this to some students would be an attractive feature; and (2) he would receive pay and subsistence during the hospital year, at the end of which he would receive his diploma, just as he would if the year had been spent in a civilian hospital. These factors, taken together, should appeal to the average fourth-year student.

There are two obstacles to this proposition, neither of which, however, is serious: First, the law requires that an applicant for the Medical Corps of the Army must have an M.D. degree from a reputable and well-recognized medical school; second, the medical school which requires the hospital year—and soon all medical schools of any standing will do so—would have to agree to recognize the army hospital as satisfying their requirements for the hospital year. The first obstacle could very easily be overcome by a slight modification of the present requirements, or by having the student go through his hospital year as a noncommissioned officer. The second also can surely be overcome, for certainly medical colleges will willingly grant recognition to the divisional hospitals of the army—at least to the great Walter Reed Hospital.

Current Comment

THE FATE OF PROTEINS INJECTED INTO THE CIRCULATION

The fact that considerable quantities of blood, a fluid exceptionally rich in protein, can be introduced into the circulation without untoward effects and frequently with benefit has occasionally fostered the belief that other more easily obtainable protein solutions also could be infused occasionally with advantage. Before the rôle of digestion as a preliminary to assimilation was understood as well as it is at present, the possibility of direct nutrient benefit from proteins and other foodstuffs introduced directly by injection into the circulating medium of the body or less directly by the subcutaneous path seemed more plausible. Today it is the amino-acid digestion end-product, in the case of proteins, that counts as the real nutrient unit. The nitrogenous pabulum of the tissues is believed by the great majority of physiologists to circulate as amino-acids, which are the prime sources of constructive transformations in the tissues. If this hypothesis is correct, unaltered, that is, undigested foreign protein which finds its way into the blood stream may be expected to behave essentially like foreign material in the body. There are many experiments on record to indicate that this is true so far as the appearance of protein in the urine is evidence that protein introduced parenterally fails of utilization. Casein is, in a sense, not an entirely foreign protein, since it is actually manufactured in body cells by the mammary gland. Nevertheless, even this substance is not retained in the body when it is introduced through channels whereby digestion is avoided. Aaron,[1] who has repeated some of the earlier attempts at intravenous nutrition with proteins, has succeeded in recovering in the urine as much as 58 per cent. of the casein injected in animals. The futility of further procedures in this direction should henceforth be clearly understood.

THE PREVALENCE OF SYPHILIS

It is difficult to obtain accurate figures showing the prevalence of venereal disease. Many observers have attempted to collate statistics, but certain inherent difficulties have always prevented satisfactory results. The disinclination of patients to give out information regarding these so-called "secret" maladies has always been a troublesome factor. The development of the complement fixation test has enabled us to reach conclusions regarding syphilis that are more definite than any obtained before the introduction of this method. Day and McNitt[2] have recently studied nearly 3,000

1. Von Aaron, B.: Das Schicksal des intravenös verabreichten Caseins, Ztschr. f. physiol. Chem. **98**: 49, 1916-1917.
2. Day and McNitt: Am. J. Syphilis, **3**: 595, 1919.

patients in the hospital and outpatient services of the Barnes Hospital of St. Louis. Among their well-to-do patients, a little over 6 per cent. gave a positive Wassermann reaction. Among the middle class, represented by patients in the pay wards, something over 13 per cent. gave evidence of syphilis, and in the lower class of white patients, nearly 20 per cent. gave evidence of the disease. Among the colored patients, 30 per cent. in the wards gave a positive Wassermann reaction. In the dispensary nearly 16 per cent. of the white and over 40 per cent. of the colored patients gave a serologic evidence of syphilis. These figures, covering a comparatively large series of patients, indicate the prevalence of the disease among the average sick and not among the average well. As the existence of a previous syphilitic infection predisposes to other diseases as well as sending many patients to the hospital with the late manifestations of syphilis in the internal organs, the figures cannot be considered applicable to the general population.

Association News

THE NEW ORLEANS SESSION

Announcement of Personnel of the Local Committee on Arrangements

The following Local Committee on Arrangements for the New Orleans session, April 26 to 30, 1920, has been constituted: chairman, A. E. Fossier; secretary, T. J. Dimitry; treasurer, Paul J. Gelpi.

CHAIRMEN OF SUBCOMMITTEES

Advisory	Charles Chassaignac
Sections and Section Work	Homer Dupuy
Registration	Hector E. Bernadas
Finance	J. W. Newman
Entertainment	Amedee Granger
Halls and Meeting Places	William Seeman
Hotels	J. J. Wymer
Scientific Exhibits	C. C. Bass
Commercial Exhibits	W. H. Block
Information	Allan Eustis
Publicity	Hamilton P. Jones
Printing	W. H. Knolle
Signs and Placards	E. L. Leckert
Transportation	H. W. E. Walther
Badges	J. Birney Guthrie
Golf	John B. Elliott
Membership	William M. Perkins
Clinics	Hermann B. Gessner
Women Physicians	Elizabeth Bass

Government Services

Personnel of the Medical Department

For the week ending December 5, the Medical Corps contained 2,280 officers; the Reserve Corps 3,398, an increase in the latter of eighty-one from the previous week.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

MINNESOTA

Adrian—Tiedemann, I. D.

NEW YORK

New York—Bainbridge, W. S.
Pochester—Herriman, W. J.

NORTH CAROLINA

Linden—Bell, F. O.
Raeford—Dickson, J. G.

RHODE ISLAND

Newport—Merritt, E. L.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Joint Meeting.—The Los Angeles County Medical Association held a joint meeting with the Southern California Medical Society, December 4 and 5, in Los Angeles. The address of the president, Dr. Edward W. Burke, Redland, was on "Medical Readjustments Following the War."

Soldiers Honored.—A banquet was given at Hotel Alexandria, Los Angeles, December 11, in honor of the members of the Los Angeles County Medical Association who have been in the military service during the world war. About 265 members gave up practice to enter the medical corps, and of this number all but twenty-four have returned.

DISTRICT OF COLUMBIA

Changes in Faculty.—General William H. Arthur, M. C., U. S. Army, has been appointed professor of military hygiene in the Georgetown University, Col. William O. Owen, M. C., U. S. Army, head of the department of anatomy, and Dr. William G. Irving, professor of orthopedics in the institution.

Personal.—A reception was tendered by Major-Gen. Merritte W. Ireland, Surgeon-General, U. S. Army, and Mrs. Ireland, at their apartment in the Wyoming, recently, to the faculty and student officers of the Army Medical School. ——Matthew A. DeLaney and William J. L. Lyster, colonels, M. C., U. S. Army, were decorated by the Prince of Wales with the order of St. Michael and St. George, at the investiture, November 13.

Testimonial to Dr. Kober.—To express the admiration and gratitude in which Dr. George M. Kober is held by his pupils, friends and co-workers, it has been decided to issue as a testimonial to these sentiments an anniversary publication dedicated to him, on the occasion of his seventieth birthday, March 28, 1920. Dr. George Tully Vaughan has been selected as chairman of the organization; Mr. Felix Neumann of the Army Medical Museum, as secretary; Mr. John Joy Edson, as treasurer, and as members of the committee at large, Gen. Robert E. Noble, Drs. Charles D. Walcott, Wilfred M. Barton, J. W. Fewkes, Walter D. Hough, L. O. Howard, Ales Hrdlicka, Washington, and T. Michleson, Prof. W. H. Holmes, and Mr. N. M. Judd. The anniversary publication will be the issue of the *American Journal of Physical Anthropology*, which will be published in the latter part of March, and will be known as the George M. Kober Anniversary number.

ILLINOIS

Personal.—Dr. Josephus J. Brown, for nearly forty-one years a practitioner of Troy, has disposed of his entire business and property interests and expects to locate in California.——Dr. Lee C. Harlan, Madison, is convalescent after a severe infection of the hand.

Chiropractor Convicted.—According to a news item, Dr. H. N. Mettler, a chiropractor of Rock Island, recently convicted in the circuit court for treating human ailments without a license, was fined $200 and costs, amounting to $226.30. The case has attracted much interest among chiropractors all over the state of Illinois and Iowa and is expected to set a precedent. It is understood that Dr. Mettler will qualify for a license and continue his practice in Rock Island.

Chicago

Election of Officers.—Medical Department Post No. 316 of the American Legion announces the election of the following permanent officers: commander, Dr. John F. Van Paing; vice commander, Dr. Henry G. Lampe, and adjutant and treasurer, Dr. Thomas P. Foley.

Personal.—By the will of Robert L. Reid, who killed himself, December 1, his body is bequeathed to his friend and employer, Dr. Augustus G. Haerther "For scientific purposes."——Dr. J. W. Hilbert has been appointed physician to the Studebaker Corporation, South Bend, Ind.

LOUISIANA

War Service Physicians Organize.—Physicians who were in the military service during the war formed a post of

the American Legion, November 28, electing the following officers: commander, Dr. John B. Elliott, Jr.; vice commander, Dr. Joseph A. Danna, and adjutant and finance officer, Dr. John F. Dicks.

Personal.—Dr. Walter J. Otis, formerly of Waverly, Mass., and more recently in the division of neuropsychiatry of the army, has located in New Orleans.——Dr. James T. Newman, New Orleans, has been appointed superintendent and surgeon in charge of Providence Hospital, New Orleans, an institution for colored patients.

Case of Yellow Fever in New Orleans.—The president of the state board of health reports that William H. Stevens of New York City, a passenger from Merida, via Progresso, Mexico, on a steamer which arrived in New Orleans, December 2, died at noon, December 4, from yellow fever. The disease was promptly recognized and all precautions were taken.

Bubonic Plague.—The president of the dock board announces that all port facilities of New Orleans, save five wharfs, are to be ratproofed at an expenditure of about $2,000,000. The other facilities of the board will gradually be ratproofed, the necessary funds being borrowed.——The seventh case of bubonic plague reported this year in New Orleans is that of John Unger, a rat catcher in the Public Health Service, who was seized with the disease, November 27.——One death from bubonic plague occurred, November 25. The case was detected, November 22, and was sent to the isolation hospital, where serum was administered, but it was then too late to save the life of the child.

MARYLAND

Personal—Dr. Raymond Pearl, professor of biometry and vital statistics in the school of hygiene and public health at Johns Hopkins University, has been appointed statistician to the Johns Hopkins Hospital.

Fire at Johns Hopkins.—McCoy Hall and others of the old buildings of Johns Hopkins University were destroyed by fire, November 27. The loss is covered by insurance, but valuable libraries and records of the school of hygiene and public health which occupied the second floor of McCoy Hall were destroyed with irreparable loss. On the day before the fire Dr. Raymond Pearl, in charge of the department of biometry and vital statistics in the school of hygiene at Johns Hopkins, moved to McCoy Hall, his entire private scientific library, including about 15,000 reprints and pamphlets, and the accumulated unpublished records of his work for the last twenty years. These were entirely destroyed. Sir Arthur Newsholme lost many of his private papers in the fire.

NEW YORK

Addition to Hospital.—A twenty-five bed addition to the Rochester Municipal Hospital for Infectious Diseases has just been completed. This addition consists of isolation rooms and two small wards, and gives the hospital a total bed capacity of more than 100 beds.

Personal.—Dr. Albert H. Garvin has resigned his position as superintendent for the State Hospital for Incipient Tuberculosis at Ray Brook to accept a similar position at a sanatorium for incipient tuberculosis, located near Detroit, at a salary of $10,000 a year.——Dr. John J. Lloyd, Jr., Rochester, superintendent of the Tuberculosis Sanatorium, Rochester, has been elected superintendent of the Blue Ridge Sanatorium, now under construction, near Charlottesville, Va.

New York City

Academy Election.—At a stated meeting of the New York Academy of Medicine, December 4, the following officers were elected: first vice president for three years, Dr. Rufus I. Cole; trustee for five years, Dr. W. Gilman Thompson; member of committee on admission for five years, Dr. Sidney Rogers Burnap; member of committee of library, Dr. Cary Vogel. The term of the president, Dr. George David Stewart, does not expire for another year.

OHIO

Library Given Medical Society.—Mr. and Mrs. J. H. Himes, Canton, have given the Canton Medical Society a medical library including a fund of $1,000 to be used in the purchasing of medical journals.

Personal.—Dr. Erwin A. Peterson, Cleveland, has been appointed director of department of health service of the American Red Cross.——Dr. Paul G. Woolley, Cincinnati, professor of pathology of the University of Cincinnati, has resigned.——Dr. Robert B. Woodward, Somerset, has been elected mayor of the village. This is the fifteenth term he has served as executive officer of the village.——Dr. Van S. Deaton has been elected mayor of Troy.——Dr. Clarence W. Russell, Springfield, who has been ill with heart disease at the home of his sister in Burton, is convalescent and has resumed practice.——Mrs. Rena D. Reed, wife of Dr. Charles A. L. Reed, Cincinnati, died recently from cerebral hemorrhage.

PENNSYLVANIA

Personal.—Dr. E. Olivia White, Philadelphia, has been appointed asistant chief of the division of child hygiene of the state health department.——Dr. Frederick W. Coover, Harrisburg, has been elected surgeon emeritus on the staff of the Harrisburg Hospital.——Dr. J. Allen Jackson, Philadelphia, chief resident physician of the department for the insane of the Philadelphia General Hospital, has resigned to accept a similar position at the State Hospital for the Insane, Danville.

Tuberculosis Night.—A special meeting was held at the College of Physicians, December 10, and designated "Tuberculosis Night." Similar meetings were held at the branches of the Philadelphia County Medical Society, all open to the public. This meeting was for the discussion of a campaign against tuberculosis. Dr. Edward E. Martin, commissioner of health of Pennsylvania, spoke on the work of the state in its fight against this disease and Clifford B. Connelley, commissioner of labor of Pennsylvania, spoke of tuberculosis in its relation to the wage earners. Edward Keenan, president of the central labor union of Philadelphia, discussed union labor's interest and place in the tuberculosis crusade.

Jefferson Establishes a Dietetic Center.—The Tuberculosis Society of Philadelphia has established a dietetic center at the Jefferson Department of Diseases of the Chest at 238 Pine Street. The first class attended by state nurses took up the preparation of economical and nutritious foods and the ultimate plan is to establish dietetic clinics throughout the state. The nurses will be taught to instruct mothers of families and urge pupils to attend the classes. Ultimately it is hoped to establish regular dietetic clinics at all hospitals. Classes are under the supervision of Miss Idella G. Miller, a dietitian furnished by the Tuberculosis Society. These are held each afternoon and evening and consist of one and a half hour periods. Instruction will cover preparation of simple foods and the making of ideal menus designed to supply the greatest amount of strength. The Social Service Department, headed by Miss Eleanor Finken, is actively cooperating in this movement.

Philadelphia

Society Honors Service Men.—The L. Webster Fox Ophthalmological Society of the Medico-Chirurgical College of Philadelphia held its annual banquet at the University Club, November 22, in honor of its members who were in the military service during the war. Dr. John A. Brophy presided as toastmaster.

Hatfield Lectures.—Lecture No. 2 of the Nathan Hatfield Lecture series will be delivered at the College of Physicians of Philadelphia, December 16, at 8:30 p. m. by Dr. Harvey Cushing, Boston, professor of surgery in Harvard University, on "The Major Trigeminal Neuralgias and Their Surgical Treatment."

Tuberculosis Days.—Tuberculosis day was observed in the schools of the city, December 5, was observed in the synagogues, December 6, and in the Sunday schools and churches, December 7. Special attention was called to the sale of Red Cross Christmas seals, now being conducted under the auspices of the Philadelphia Tuberculosis Committee.

CANADA

Personal.—Dr. John A. Amyot, Toronto, deputy of minister of health for Canada, has left Ottawa to confer with Dr. Gordon Bell, provincial bacteriologist in Winnipeg, to discover the sources of the so-called sleeping sickness reported from western Canada.

Public Health News.—It is now definitely stated that the smallpox outbreak in Ontario has been traced to Toronto. Up to the end of November there was a total of 1,673 cases in that province with no deaths. Most of these occurred in Toronto, the figures being 1,356. The disease has occurred in thirty counties of Ontario. During November, the Ontario Board of Health supplied 240,000 individual doses of small-

pox vaccine. There has also been a considerable increase in Ontario of other communicable diseases. There were in November 438 cases of scarlet fever with seven deaths; diphtheria, 621 cases with 48 deaths; typhoid fever, 53 cases, 24 deaths; tuberculosis, 157 cases, 124 deaths. During the month there were 275 cases of venereal diseases as against 96 for the same month in 1918.——A deputation of Montreal physicians in the interests of public health is visiting Toronto and interviewing the medical officer of health with regard to the outbreak of smallpox.

GENERAL

Personal.—Frederick F. Russell, Col., M. C., U. S. Army, has been appointed official representative of the Medical Corps on the government division of the National Research Council.

Biologists to Meet.—The executive committee of the Federation of Biological Societies has called the annual meeting at Toronto, Ont., December 29 to 31. This federation includes the American Physiological Society, which at this time will held its thirty-second annual meeting.

New York Medical Weeklies Resume Publication.—We congratulate our contemporaries, the *New York Medical Journal* and the *Medical Record*, on having resumed publication after a six weeks' vacation, the result of a strike. Both journals are issuing the belated issues as rapidly as possible, and, unless further troubles ensue, within a week will appear normally.

Meeting of the Child Hygiene Association.—At the annual meeting of the American Child Hygiene Association, held in conjunction with the convention of the Southern Medical Association at Asheville, N. C., last month, St. Louis was selected as the next place of meeting, and the following officers were elected; president, Dr. Philip VanIngen; president-elect, Prof. Charles A. E. Winslow, New Haven; vice presidents, Drs. W. M. Chapman, Montreal, and Howard C. Carpenter, Philadelphia; secretary, Henry F. Helmholz, Evanston, Ill. (reelected); treasurer, Austin McClanahan, Baltimore, and executive Miss Gertrude B. Knipp, Baltimore (reelected).

American Red Cross Wishes Fifty Physicians.—The American Red Cross wishes to obtain fifty medical officers for service in Europe and elsewhere. Qualified practitioners who have had military experience are preferred. Captains and lieutenants will be given preference, but those who held the grade of major will be considered, provided they are young, active and efficient. The pay will be that which they received in the service, plus 10 per cent. for overseas, with a liberal allowance for commutation. The Red Cross does not desire to sign a contract for a period of less than one year, although when necessary in a few cases the contract will be for a period of six months. The qualifications must be similar to those required by the Army and Navy for entrance into these services. Young men, preferably not over 35 years of age, are preferred. They must be physically sound and of good moral character, as they will be representatives of the medical profession of the United States in a foreign country. The work will be interesting. For further information address Brig.-Gen. Robert E. Noble, Army Medical Museum, Washington, D. C.

FOREIGN

Centennial of the French Académie de Médecine.—As Dec. 20, 1920, is the centennial of the Académie de médecine at Paris, a committee of six members was recently appointed to have charge of the celebration of the anniversary.

Harveian Festival.—The Harveian festival was celebrated with full honors by the Royal College of Physicians of London, for the first time since 1913. The oration was delivered by Dr. Raymond H. P. Crawford, and dealt with the forerunners of Harvey in antiquity. The speaker supported the thesis that in the matter of circulation of the blood Harvey's indebtedness to any but Aristotle was negligible. After the oration the president presented the Baly Medal to Dr. Leonard E. Hill.

LATIN AMERICA

Red Cross Commissioner to West Indies.—The American Red Cross has selected John A. Swan, Lieut.-Col., M. R. C., U. S. Army, as a commissioner to visit the Virgin Islands, Haiti, and Santo Domingo, and make a survey of the work to be done. There is now one Red Cross hospital in Santo Domingo, at Seibo, which is officered and manned by the Medical Corps of the Navy.

Foreign Correspondence

LONDON

Nov. 19, 1919.

The Medical Research Committee

The fifth annual report of the Medical Research Committee (a body appointed under the national health insurance act to undertake research) has issued its fifth annual report. This surveys the advances in medical science during the war, and indicates how they may be utilized in peace. Some very interesting researches are described. One is that of Dr. Benjamin Moore on "photosynthesis." He finds that in the presence of sunlight, but without the aid of bacteria, both fresh water and marine algae are able to take nitrogen out of the air and to "fix" it. The nitrogen is taken up probably as nitrites and nitrates formed by the action of light on nitrogen and oxygen in the air or dissolved in water. Evidence has been found that the so-called "active oxygen" of fresh country air is not ozone, but nitrogen peroxid, probably formed by ultraviolet light causing direct union of nitrogen and oxygen. The ultraviolet rays are largely filtered out of the light in city atmospheres. Further, there seems to be a relation between what is called the "ozonometric" chart and the energy of the sun.

An important investigation on the prevention of influenza by the use of gases has been undertaken by Dr. Alexander Gregor, health officer for Falmouth. He noticed that the employees in gas works did not suffer from influenza. This suggested that gases might be used as a prophylactic. Dr. Benjamin Moore collaborated with him in devising methods for the slow and safe discharge of nitrogen peroxid at a concentration fit for breathing and with other gases (sulphur dioxid, nitric acid and acetone). It was found that exposure to these gases caused a great diminution in the growth of bacteria obtained from swabs of the throat and nose. The application of these results is described in the *British Medical Journal* by Dr. Gregor. An outbreak of influenza took place in a camp, and it was resolved to try to disinfect the men *en masse* with nitrogen peroxid, which was generated by placing strips of copper in nitric acid. The concentration of the gas was so arranged that the odor was not irritating or disagreeable. The men were kept in the gas for ten minutes. No complaint was made as to any untoward effect or after-effect. About 400 were passed through the chamber in five days. Unhappily the battalion was in process of being broken up, for which reason accurate results could not be obtained. However, the fact was established that it was quite practicable to expose bodies of men to the fumes without either personal discomfort or ill effect. A gang of navvies living in a large shed in dock was then experimented on. Two men who contracted influenza were removed to the hospital. They were exposed to sulphur dioxid; half an ounce of sulphur per thousand cubic feet was burned slowly in their sleeping quarters while they were going to bed and rising in the morning. This caused no discomfort and little irritation, and was continued for fourteen days. No other case of influenza occurred.

Anthrax in Shaving Brushes

The contraction of anthrax from infected shaving brushes imported from Japan has already been reported. Cases have again occurred, due to a consignment from that country. Two cases are reported in Norfolk and two in London. Dr. Andrews, bacteriologist to St. Bartholomew's Hospital, has found anthrax bacilli in six out of nine brushes examined.

Memorials to Lord Lister

Two memorial tablets to Lord Lister have been unveiled, one at University College and the other at University College Hospital, where he was student and house surgeon from 1843 to 1852. A distinguished audience was present. Sir George Makins, president of the Royal College of Surgeons, delivered an address. He said that no memorial stone was needed to perpetuate Lister's fame. There was a splendid monument already in the collected edition of his scientific papers. Sir J. J. Thomson, president of the Royal Society, gave an address on Lister's connection with the society, which claimed to have recognized his merits at a very early stage in his career. He was elected a fellow in 1860, when 33 years of age. His father and a brother were also fellows, as was a nephew now. In 1880 he was awarded a royal medal, and in 1902 the Copley medal, which the Royal Society considered the highest honor it had to bestow. Lister's

connection with the administration of the society began with his appointment as foreign secretary in 1893, a position he held until elected president in 1895. He held that office for five years, during which time many important branches of work were undertaken, including the setting up of a committee for the investigation of tropical diseases, and the establishment of the National Physical Laboratory. From his experience when serving on the council with Lister he had been impressed by his courtesy. Discourtesy in him was unimaginable. His personality seemed to banish the microbe of discourtesy from the committee room as effectually as his discovery had banished the germs of foul disease from the surgical ward. His kindliness was conspicuous. In deciding on the bestowal of medals and prizes, he sympathized with the unsuccessful more than he rejoiced with the victors.

PARIS

Nov. 6, 1919.

Congress of Orthopedists

At the first congress of French orthopedists, a partial report of which was given in The Journal, November 29, two of the subjects discussed were: war spondylitis, and treatment of pseudoarthrosis.

WAR SPONDYLITIS

In his communication, Dr. Froelich, professor of clinical pediatrics and orthopedic surgery on the Faculty of Medicine of Nancy, passed in review all the chronic lesions of the vertebrae that he has seen in soldiers. Among the nontraumatic affections, aside from Pott's disease, he mentioned particularly syphilitic lesions, the true character of many of which fails to be recognized; rheumatismal spondylitis occurring in young subjects and marked by rapid development; typhoid spondylitis, and acute osteomyelitis; furthermore, in young soldiers, acute kyphoscoliosis, the result of overexertion, attended with fever and a general debilitated condition, and the staphylococcic infection described by Kirmisson under the name of "kyphoscoliosis of apprentices."

Among the traumatisms may be mentioned spinal lesions with loss of a portion of bone, and fractures caused by projectiles, often the origin of osteitis and of fistulas far removed from the original lesion. The internal traumatisms engender various forms of spondylitis: "vertebral insufficiency" so called, described by Denucé, in which a simple wrench or sprain, without lesions discoverable roentgenographically, causes a great deal of trouble and often presents vicious aspects difficult to control; hysterotraumatic kyphosis, or camptocormia as it has been called, occurring in men who have been engulfed by the bursting of a shell, which often produces a vertebral sprain and consequent anatomic lesions. Examination of the roentgenogram for lesions is negative, but they are often present nevertheless, and the subjects do not recover until they have worn a corrective body cast for a year. All too often such men have been regarded as malingerers; whereas, the fact is, some of them have not recovered yet, although there has been a cessation of hostilities.

Then there is the Verneuil-Kümmel type of fracture of the spinal column, the evolution of which in three periods is well known: a brief period of pain after the injury, followed by a period with no symptoms, and then a progressive gibbosity and renewed pain. These patients are often required to wear a plaster cast, which gives support to the body and effects a cure in many cases. Froelich thinks that if it is possible to diagnose the case in the start by means of a lateral roentgenogram revealing a compression in the compact tissue of the vertebral body, the Hibbs or the Albee operation would be indicated.

TREATMENT OF PSEUDO-ARTHROSIS

All the speakers who took part in the discussion were agreed that the treatment of war pseudo-arthrosis is much different from the treatment of pseudo-arthrosis resulting from simple fractures (*fractures fermées*). The reasons assigned for this difference were: the extent of the loss of bone substance, the long suppuration of the wounds, the extent and the depth of the resulting scar tissue, latent microbes which cause the wounds to become reinfected, and the state of extreme calcification found in the ends of the bones. Dr. Mauclaire, surgeon of the Hôpitaux de Paris and agrégé professor on the Faculty of Medicine, remarked that there was, however, an enormous difference between the wounds in the beginning of the war and the wounds in the last years of the war, after the practice of conserving adherent bone fragments and the primary and delayed closure of wounds were introduced. In spite of this improvement the treatment was still much more difficult than in pseudo-arthrosis in peace times, which explains the variety in the methods of intervention used during the war.

Dr. Judet of Paris stated that he was somewhat skeptical in regard to bone grafts (whether of dead bone or of live bone); likewise with respect to osteoperiosteal grafts. He cited two cases in which he had followed for a long time, by means of roentgenography, a dead osteal graft and osteoperiosteal grafts and had watched their resorption without reproduction of bone. He had seen roentgenograms of other grafts and the reproduction of thin transverse strips of bone, but he had never seen a large, solid bone.

Dr. Rocher of Bordeaux took exception to Judet's statements. He thinks that the results shown in the roentgenogram are not always an accurate measure of the actual clinical results. Some cases of pseudo-arthrosis present firm consolidation to the palpating hand, whereas the roentgenogram shows little or nothing of these changes. In fact, there are cases presenting absolute solidity of certain parts although no corresponding roentgenographic shadow is obtained. Personally, Rocher has used the Albee graft or the total fibular graft without the periosteum. If a focus of osteomyelitis is found, osteosynthesis should be done. It is useless to try to apply a graft if the loss of substance is great; cicatrization should take place before a graft is applied. General treatment by means of organotherapy and heliotherapy; also treatment of a coexisting diabetes or syphilis, offer great aid. Methodical exercise helps to adapt and strengthen the graft. If the first graft is not a success, others may be tried and often prove successful. Before attempting operations of this kind the surgeon should be well equipped with instruments and should be well supplied with "bony armament." The graft should not be placed in a position "approximately correct," but should be wedged in and fitted tight, for osteogenetic growth will thus be much facilitated.

Dr. Albee of New York City, in a long communication, told of the results that he had secured by the use of bone grafts in fractures and in pseudo-arthrosis. The results have been published in his work on the surgery of bone grafts (1915). In the last ten years he has performed 1,950 bone grafting operations. He emphasized the disadvantages of dead bone as a graft. Since 1911 he has used only live bone. The graft should include the whole thickness of the bone: periosteum, outer compact layer, cancellated tissue, endosteum and marrow. He emphasizes also the superiority of the electric twin saw over the hand chisel in preparing the graft. The advantages of this saw are: great rapidity (ten minutes being sufficient for most graft operations in fractures) and greater exactitude in the coaptation of the bone fragments. In pseudo-arthrosis there are two essential features to be observed: (1) the use of grafts that are long enough to reach the healthy bone. It does not suffice that the graft is left in contact with the fibrous, decalcified ends of the sound bone. All the bad results that are not due to infection come from too short grafts. If the fractures are of old origin and if fruitless attempts at suture have been made, the grafts should be of greater relative length than otherwise; (2) the absolute adaptation of the graft to its site. Herein lies the advantages of the "inlay graft," a technic described by Albee. Such an inlay graft is resistant to infection and may be applied even to a suppurating bone. Immobilization of the member is indispensable, the apparatus varying with the conditions. Massage and mobilization are begun very soon, but restriction of movement should be continued for three or four months.

Marriages

Charles Miller Hatcher, Asst. Surg., Lieut. (j. g.), U. S. Navy, U. S. Naval Hospital, Las Animas, Colo., to Miss Janice M. Miller of Massies' Mills, Va., at Richmond, Va., October 21.

Halliburton McCoy, Lieut., M. C., U. S. N. R. F., Asheville, N. C., to Miss Emma Louise Garnett of Charlottesville, Va., October 25.

Hadley Thomas Cannon to Mrs. Lilie Wright Loweree, both of New York City, at Greenwich, Conn., November 15.

Thomas Harrison Flesher, Edmond, Okla., to Miss Margaret Elizabeth Cherry of Ardmore, Okla., October 18.

Emil Arnold Schlageter, Chicago, to Miss Agnes Clare McHenry of New Richmond, Wis., September 18.

Deaths

Edgar Reid Russell ✠ Asheville, N. C.; University of Maryland, Baltimore, 1895; aged 49; a member of the American Academy of Ophthalmology and Oto-Laryngology; one of the founders and formerly professor of diseases of the eye, ear, nose and throat in the North Carolina Medical College, Charlotte; a member of the surgical staff of the Meriwether and Presbyterian hospitals, Charlotte, and of the Charlotte Sanatorium, and president of the Charlotte Medical Society; died, November 27, from septicemia following a scratch of the hand.

John Robert Tackett, Meridian, Miss.; Tulane University, New Orleans, 1889; aged 50; captain, M. R. C., U. S. Army, and honorably discharged, Jan. 10, 1919; a veteran of the Spanish-American War; professor of theory and practice of medicine and internal medicine in Meridian (Miss.) Medical College; a member and once vice president of the Mississippi State Medical Association, and a member of the Mississippi State Board of Health; surgeon in the National Guard of Mississippi; died, November 25.

James Milton Flint, Medical Director, Rear Admiral, U. S. Navy (retired), Washington, D. C.; Harvard University Medical School, 1860; aged 81; who entered the Navy, April 14, 1862; was made medical inspector in 1893, and medical director in 1897; and was retired in 1900; he served as fleet surgeon of the Asiatic Fleet in 1894 and 1895; was honorary curator of the division of medicine of U. S. National Museum from 1881-1882, 1888-1891 and since 1895; died, November 21.

Walter Seymour Reynolds, New York City; University of the City of New York, 1892; aged 55; a member of the Medical Society of the State of New York; clinical assistant in genito-urinary diseases in the College of Physicians and Surgeons in the City of New York since 1898, and attending surgeon in the genito-urinary department of University and Bellevue Medical College since 1900; died, November 24.

Willis Clark Noble ✠ Montclair, N. J.; University of the City of New York, 1891; aged 65; for eighteen years a medical missionary in charge of the Mission Hospital of the American Board Commissioners of Foreign Missions at Paotingfu, China; physician, assistant attending surgeon and radiographer of the Mountainside Hospital, Montclair, since 1902; died, November 21, from cerebral hemorrhage.

Simeon C. Adams, Mexico, Mo.; Louisville (Ky.) Medical College, 1880; aged 67; for twenty years proprietor of the Mexico Hospital and Adams Institute for Treatment of Drug Addicts; formerly secretary of the Audrain County Medical Society; died, November 23, at the Amanda Hospital, Mexico, a short time after a surgical operation.

Leonard Basil Gapinski, Chicago; Chicago College of Medicine and Surgery, 1916; aged 26; first lieutenant, Medical Reserve Corps, U. S. Army, and honorably discharged, June 28, 1919; died, November 1, in St. Mary of Nazareth's Hospital, Chicago, from streptococcus infection following an accidental cut of the lip.

Abraham Joseph Arbeely, Washington, D. C.; Syrian Protestant College, Beirut, 1872; Imperial University, Constantinople, Turkey, 1878; aged 67; also a dentist; founder and president of the Syrian-Greek Orthodox Church and Benevolent Society; founder and publisher of the *Star of America;* died, October 30.

William Gilbert Povey, Detroit; University of Michigan, Ann Arbor, 1899; aged 46; formerly demonstrator of gynecology in the Western Reserve University, Cleveland, and a member of the staff of the Lakeside Hospital Dispensary; died, November 24, after a surgical operation.

Maurice J. Vigneux, Nelson, B. C.; McGill University, Montreal, 1911; aged 41; who had just returned after eighteen months' service in France; was accidentally drowned, August 22, while endeavoring to rescue a little girl who had fallen into the lake at Connaught Park, Nelson.

William H. Perry, Carterville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 68; a member of the Illinois State Medical Society and president of the Williamson County (Ill.) Medical Society in 1913; died, November 15, from cerebral hemorrhage.

Frank Dwight Crim ✠ Utica, N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 63; a member of the staff of Faxton Hospital, Utica; from 1888 to 1895 a resident of Lincoln, Neb., and for a time coroner of Lancaster County; died, November 27.

Jesse Yeager Scott, Washington, Pa.; University of Pennsylvania, Philadelphia, 1875; aged 71; a member of the Medical Society of the State of Pennsylvania; surgeon to the Washington Hospital; a director of the Washington Trust Company; died, about November 28.

Clayton Welch Seaman, Buffalo; New York Homeopathic Medical College, New York City, 1896; aged 50; a member of the Medical Society of the State of New York; visiting physician to the Buffalo Homeopathic Hospital, and Ingleside Home; died, November 13, from tuberculosis.

Oliver J. Gronendyke, Newcastle, Ind.; Medical College of Ohio, Cincinnati, 1885; aged 55; a member of the Indiana State Medical Association; for eighteen years a member of the local school board; died at Martinsville, Ind., November 23, from pneumonia.

Walter B. Helm ✠ Rockford, Ill.; Northwestern University Medical School, Chicago, 1884; aged 60; president of the Tri-State Medical Association; consulting surgeon to Rockford Hospital; died in Wesley Hospital, Chicago, November 28, from pneumonia.

Edward McLaren Darrow ✠ Fargo, N. D.; Rush Medical College, 1878; aged 64; the oldest practitioner in point of service in North Dakota; died in St John's Hospital, November 25, from carcinoma of the liver, after an exploratory operation.

Robert Hanley, Kingston, Ont.; Queen's University, Kingston, Ont., 1898; for eight years a member of the city council; surgeon at the Portsmouth Penitentiary; died in the Hotel Dieu, Kingston, September 18, after an operation for appendicitis.

George Washington Cocke, Bartow, Fla.; College of Physicians and Surgeons, Baltimore, 1885; aged 58; a member of the Medical Society of Virginia; died in a hospital in Charlotte, N. C., November 12, after a surgical operation.

Harmon Baker Gibbon ✠ Tiffin, Ohio; Cincinnati College of Medicine and Surgery, 1877; aged 67; president of the Ohio State Medical Association in 1916 and 1917; died, November 23, from angina pectoris.

David Hopper Warner, Newmanstown, Pa.; University of the City of New York, 1886; aged 57; a member of the Medical Society of the State of Pennsylvania; died, November 24, from cerebral hemorrhage.

Alonzo H. Lothrop, Lexington, Ind.; Kentucky School of Medicine, Louisville, 1876; Louisville (Ky.) Medical College, 1894; aged 77; a veteran of the Civil War; died, November 21, from tuberculosis.

Louis F. Klemm ✠ Milwaukee; Milwaukee Medical College, 1900; aged 49; physician of Milwaukee County from 1906 to 1915; died, recently, from chronic interstitial nephritis.

Louisa Schlegel, Brooklyn; New York Medical College and Hospital for Women, Homeopathic, New York City, 1889; aged 72; died, November 23, from arteriosclerosis.

Alexander C. Smith, Indianapolis; Indiana Eclectic Medical College, Indianapolis, 1881; aged 70; for forty-six years a practitioner; died, November 22, from heart disease.

Beyan A. Rabe, San Francisco; Western Reserve University, Cleveland, 1871; aged 76; a veteran of the Civil War; died, November 23, from carcinoma of the liver.

James Wesley Alexander, Woodland Mills, Tenn.; University of Louisville, Ky., 1876; aged 64; also a banker; died, October 27, from carcinoma of the stomach.

John M. Turk, Canton, Ga.; Reform Medical College, Macon, Ga., 1858; aged 85; a Confederate veteran; died, November 11, from cerebral hemorrhage.

Jacob Hester, Philadelphia; Penn Medical University, Philadelphia, 1860; aged 87; for many years a practitioner of Trenton, N. J.; died, November 24.

Mason J. Skiff, North East, Pa.; College of Physicians and surgeons, Keokuk, Iowa, 1884; aged 70; died, October 21, from chronic interstitial nephritis.

Samuel L. Adair, New Washington, Ind.; Kentucky School of Medicine, Louisville, 1868; aged 76; died, November 16, from cerebral hemorrhage.

William Thompson Houser, Portland, Ore.; Physio-Medical Institute, Cincinnati, 1874; aged 70; died, November 6, from cerebral hemorrhage.

Robert Leonidas Knox, Memphis, Tenn.; University of Nashville, Tenn., 1859; aged 83; died, October 7.

✠ Indicates "Fellow" of the American Medical Association.

Correspondence

"DEFECTS IN THE TEACHING OF PATHOLOGY, AND THE LAY PROFESSOR"

To the Editor:—Will you allow me to reply to the article by Dr. Symmers on "Defects in the Teaching of Pathology, and the Lay Professor" (The Journal, Nov. 29, 1919, p. 1651), as his stigmatization of the so-called lay professor is untimely and shows a lack of appreciation of the contributions of these men to medical progress. The naive admission that it may not be logical, but is essentially human, gives conclusive evidence that there has been engendered a strong defense reaction against the acknowledgment that any person, whatever his training, may have any conception of the labyrinth of medical subjects unless he has successfully completed a prescribed course in a medical school leading to the degree of M.D. As I look at it, the first task of any individual entering on the study of medicine is that he acquire a knowledge of the normal human body in its structure and mechanisms. For if he knows not the normal, how can he detect deviations therefrom? And what does anatomy, gross and microscopic, embryology, physiology, and biochemistry purport to teach if not these fundamental conceptions of the make-up and workings of the normal organism? If such foundation is established, the lack of information as regards deviation or pathologic conditions lies not in lack of perspective, sense of proportion, or appreciation of relative values on the part of the "lay professor," but rather in the teaching inability of the later instructors.

As much expect a teacher of mathematics to be the possessor of an engineering degree, a teacher of literature to be a successful author, as to demand a teacher of the fundamental medical subjects to have run the gamut of medical school curriculum from obstetrics to psychiatry. Not that I would for one moment deny that that man who does not take an intelligent interest in medicine as a whole, and the possibilities of the application of a knowledge of his subject to practice, is unfit for teaching medical students; but I assert that the man need not necessarily have tacked after his name the magic symbols M.D. any more than an instructor of French need be of Gallic extraction.

Does any informed and intelligent individual for one moment believe that medicine, medical schools and medical students are the losers by having as teachers such men as Folin, Mathews, MacCollum, and many others possessing the despised (?) Ph.D. degree? Or that these men are lacking in perspective, appreciation of relative values and sense of proportion? Let those that doubt show equal contributions to medical progress, and I will gracefully retire.

Frederick S. Hammett, Ph.D., West Philadelphia, Pa.

"INTENSIVE" ANTISYPHILITIC TREATMENT

To the Editor:—The casual reader is likely to get his impressions from headlines rather than from tables of figures buried in the body of an article. The title of the interesting paper on toxic jaundice (Lynch, T. J. and Hoge, S. F.: Toxic Jaundice Following "Intensive" Antisyphilitic Treatment, The Journal, Nov. 29, 1919, p. 1687) conveys the unmistakable impression that the untoward effects reported were the results of "intensive" treatment with arsphenamin. Perusal of the text, however, shows that the authors entertain views regarding the meaning of the term "intensive" wholly at variance with current conceptions. They state: "In the so-called intensive treatment, from 0.4 to 0.6 gm. are given at weekly intervals over a period of from six to eight weeks." This is a misunderstanding of the common use of the term "intensive"; most syphilographers understand by this term the employment of arsphenamin in full doses at short intervals over short periods as, for instance, in the method which I have been using for the past five years—parenthetically, without any untoward result whatever—three full doses in three days. As a matter of fact, it appears that in the authors' cases the toxic symptoms developed in syphilitics who had received four doses of arsphenamin with intervals of a week between treatments. This is not intensive treatment.

It is interesting to note, furthermore, that the authors seem aware of the fact that toxic jaundice is unrelated to large dosage or frequent administration because they (correctly) state that "this accident [toxic jaundice] is liable to occur after a single dose."

We do not know the factors on which the occurrence of toxic jaundice depends. Millions of injections of arsphenamin have been given by the once-a-week method; the deaths from acute degeneration of the liver number probably less than a hundred. Why intimate that "intensive" treatment is responsible for them?

A year or more ago, the editor of a widely read medical journal, commenting on deaths from hemorrhagic encephalitis after arsphenamin, issued a warning against "intensive" methods and large dosage, ignoring the fact that the deaths in question had occurred after the ordinary once-a-week treatment with moderate doses. One fact is that deaths from hemorrhagic encephalitis have occurred after a single dose as small as 0.2 gm. and also after treatments administered at intervals of three weeks.

We know as little of the causes of hemorrhagic encephalitis after arsphenamin as of acute yellow atrophy. We do know that large dosage or frequency of administration are not necessary or even usual factors. The ipse dixits of prejudice and unfounded assumptions will not help us in the solution of these questions.

Sigmund Pollitzer, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POLYMORPHONUCLEARS IN MALARIA

To the Editor:—Please describe the changes, if any, in the polymorphonuclear neutrophils in estivo-autumnal fever.

M. S. D., Dothan, Ala.

Answer.—While in the acute malarial attacks of average severity the absence of leukocytosis is of considerable corroborative value, a slight leukocytosis amounting to about 10,000, with an increase in the percentage of polymorphonuclear cells, has been observed by Billings and others. In the more severe estivo-autumnal attacks a definite leukocytosis has been observed, especially in the hemoglobinuric or blackwater type of malarial infection. The extent of the leukocytosis varies between 10,000 and 35,000, although many attacks fail to cause any distinct increase. During the afebrile periods the eosinophils are usually increased; neutrophil myelocytes are occasionally present, rarely eosinophil myelocytes. Pigmented leukocytes are seen in the majority of cases, especially in the severe and fatal cases. They include mononuclear and polymorphonuclear leukocytes.

LUBRICATING JELLY

To the Editor:—Please publish a formula for a good lubricating jelly. The cost of jelly, when one uses considerable in an office practice, is quite high if one has to depend on the tubes as sold in the drug stores.

S. E. Howard, M.D., Rochester, Minn.

Answer.—The subjoined formula for an inexpensive lubricating jelly which has been used in the German Hospital (now the Lankenau Hospital), Philadelphia, for a number of years was published in The Journal, May 12, 1917, which see:

Tragacanth, whole	3	gm.
Glycerin	25	c.c.
Phenol	1.5	gm.

Distilled water, a sufficient quantity to make 300 c.c.

The tragacanth is broken in small pieces, and put into a wide-mouthed bottle; the other ingredients are added, and the bottle is frequently shaken.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 13. Chairman, Dr. Samuel W. Welch, Montgomery.
ARIZONA: Phoenix, Jan. 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Jan. 13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
FLORIDA: Jacksonville, Dec. 15-16. Sec., Dr. G. A. Munch, 1306 Franklin St., Tampa.
HAWAII: Honolulu, Jan. 5-8. Sec., Dr. J. R. Judd, Honolulu.
IOWA: Des Moines, Dec. 16-18. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.
MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.
MINNESOTA: Minneapolis, Jan. 6-9. Sec., Dr. Thos. McDavitt, Lowry Bldg., St. Paul.
MISSOURI: St. Louis, Jan. 12-14. Sec., Dr. George H. Jones, State House, Jefferson City.
NATIONAL BOARD OF MEDICAL EXAMINERS: St. Louis and Chicago, Feb. 18-25. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia, Pa.
NEW MEXICO: Santa Fe, Jan. 12-13. Sec., Dr. R. E. McBride, Las Cruces.
NEW YORK: New York City, Albany, Buffalo, Syracuse, Jan. 27-31. Asst. Professional Examinations, Mr. H. J. Hamilton, Albany.
NORTH DAKOTA: Grand Forks, Jan. 6. Sec., Dr. George M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, Jan. 13-14. Sec., Dr. J. M. Byrum, Shawnee.
OREGON: Portland, Jan. 6. Sec., Dr. Frank W. Wood, 559 Morgan Bldg., Portland.
PENNSYLVANIA: Philadelphia, Jan. 13-17. Pres., Dr. John M. Baldy, Harrisburg.
SOUTH DAKOTA: Pierre, Jan. 13. Sec., Dr. Park B. Jenkins, Wauburg.
WASHINGTON: Spokane, Jan. 6-8. Sec., Dr. C. N. Suttner, 415 Old National Bank Bldg., Spokane.
WEST VIRGINIA: Charleston, Jan. 13. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.
WISCONSIN: Madison, Jan. 13-15. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Illinois March Examination

Mr. F. C. Dodds, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, March 3-6, 1919. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 168 candidates examined, 150 passed and 18 failed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	No. Licensed
PASSED		
Bennett Medical College	(1915)	1
Chicago College of Medicine and Surgery	(1917) 2, (1918) 8,	10
Hahnemann Medical College, Chicago	(1919)	7
Jenner Medical College	(1917)	1
Loyola University	(1917) 1, (1919) 5,	6
Rush Medical College	(1917) 1, (1918) 3, (1919) 72,	76
University of Illinois	(1919)	31
Indiana University	(1919)	2
State University of Iowa College of Medicine	(1918)	2
Johns Hopkins University	(1916)	2
Harvard University	(1919)	1
Jefferson Medical College	(1918)	1
National University of Arts and Sciences	(1913)	1
Washington University	(1903), (1918)	2
University of Buffalo	(1908)	1
University of Pennsylvania	(1918)	1
University of Pittsburgh	(1895)	1
Meharry Medical College	(1910) 1, (1918, 2)	3
Trinity Medical College	(1903)	1
FAILED		
Howard University	(1915)	1
Bennett Medical College	(1910), (1914)	2
American College of Medicine and Surgery	(1905)	1
Chicago College of Medicine and Surgery	(1917) 2, (1918)	3
Chicago Hospital College of Medicine	(1915)	1
Illinois Medical College	(1910)	1
Jenner Medical College	(1910), (1911), (1916), (1917)	4
Loyola University	(1916) 2, (1919)	3
Meharry Medical College	(1913), (1916)	2

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Northwestern University	(1903)	Iowa
Rush Medical College	(1906)	Utah
State University of Iowa College of Medicine	(1918)	Iowa
University of Louisville	(1915), (1916)	Kentucky
Minneapolis College of Physicians and Surgeons	(1900)	Minnesota
National University of Arts and Sciences	(1915, 2)	Missouri
St. Louis University	(1912) Arkansas, (1917)	Missouri
University of Nebraska	(1917)	Nebraska
College of Phys. and Surgs. in City of New York	(1887)	Michigan
Meharry Medical College	(1915)	Kentucky
Marquette University	(1915), (1917)	Wisconsin

*Seventy-one of these candidates received limited licenses, pending completion of their hospital internship.

Book Notices

ELECTRICITY IN MEDICINE: A PRACTICAL EXPOSITION OF THE METHODS AND USE OF ELECTRICITY IN THE TREATMENT OF DISEASE, COMPRISING ELECTROPHYSICS, APPARATUS, ELECTROPHYSIOLOGY AND ELECTROPATHOLOGY, ELECTRODIAGNOSIS AND ELECTROPROGNOSIS, GENERAL ELECTROTHERAPEUTICS AND SPECIAL ELECTROTHERAPEUTICS. By George W. Jacoby, M.D., Consulting Neurologist to the Lenox Hill Hospital, and J. Ralph Jacoby, A.B., M.D., Chief of Clinic, Neurological Department, Lenox Hill Hospital. Cloth. Price, $5. Pp. 612, with 262 illustrations. Philadelphia: P. Blakiston's Son & Co., 1919.

In presenting the subject of electricity in medicine, the authors have restricted themselves almost entirely to the use of electric currents in all fields of medical practice, exclusive of surgery. Therefore, phototherapy and the roentgen ray are discussed merely in a fundamental way. The subject-matter is presented so as to impart knowledge of the fundamental laws, the ability to use instruments in their application, and such other prerequisites as the physician may need when using electricity as a remedial agent. The book is divided into six parts, on electrophysics; apparatus required for the therapeutic and diagnostic use of electricity; electrophysiology and electropathology; electrodiagnosis and electroprognosis; general electrotherapeutics, and special electrotherapeutics. In view of the extensive use made of electricity in the diagnosis of disturbed function of the muscles and motor nerves, the section on electrodiagnosis and electroprognosis is of particular interest. The numerous charts and tables add greatly to the value of this section. The authors have not presented anything new; but they have collected information from many sources, and they present it in a concise manner which will appeal to those who are interested in the use of electricity in medicine.

DISEASE OF THE EAR IN SCHOOL CHILDREN. An Essay on the Prevention of Deafness. By James Kerr Love, M.D., F.R.F.P.S.G., Lecturer on Diseases of the Ear, University of Glasgow. Cloth. Price, $1.75. Pp. 94. New York: William Wood & Co., 1919.

Love discusses the school clinic as carried out in Glasgow, where children with ear trouble are treated. Such clinics save the child and the parent the loss of time necessitated by going to a hospital dispensary for treatment. This is an important economic consideration, as it usually means the loss of half a day to both the children and the parent to receive treatment at the hospital dispensary. Separate chapters are devoted to a discussion of the relation of the exanthems and hereditary syphilis to ear trouble. The most interesting chapter is the one devoted to hereditary deafness. In this the author applies the principle of the mendelian theory of heredity to hereditary deafness and makes a strong plea for the education of the public on the inevitable result of the propagation of deafness by marriages of people suffering from a hereditary form of deafness. He is dealing only with schoolchildren, but his arguments for the elimination of hereditary deafness by marriage control applies as well to the much more common form of hereditary deafness, that which develops, as a rule, in early middle life. We refer to otosclerosis. Love looks forward hopefully to "the passing of deafness," first, by increasing our control of the infectious fevers and of syphilis and, secondly, by the elimination of hereditary deafness by the education of the public concerning hereditary deafness and by rational control of marriage among those inheriting deafness.

LENZMANN'S MANUAL OF EMERGENCIES, MEDICAL, SURGICAL AND OBSTETRIC: THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. (Based on Lenzmann's "Emergencies in Medical Practice.") By J. Snowman, M.D., M.R.C.P. Cloth. Price, $4.50. Pp. 345. New York: William Wood & Co., 1919.

It is stated that this book is based on the English edition of Lenzmann's "Emergencies," which appeared in 1914, but that the text has been entirely rewritten and the subject-matter revised so extensively that it is practically a new work representative of the teaching of standard British authorities on medical, surgical and obstetric emergencies. Each topic is discussed in its entirety: as to the etiology, symptoms, pathology, diagnosis and treatment. The advice given is in accordance with accepted practice, and only well

known and accepted remedial agents are recommended. Its value would be greater if the subject-matter were more condensed, less discursive and, therefore, more quickly available when an emergency arises.

Medicolegal

Inability to Take Treatments Contracted for

(J. W. Samuel, Inc., v. Hams (N. Y.), 176 N. Y. Supp. 378)

The Supreme Court of New York, Appellate Division, First Department, in reversing a judgment for $300 and costs rendered in favor of the plaintiff and affirmed by the appellate term, holds that a person who contracts to pay a certain sum for treatments for a specified time, but is physically unable to take the treatments and promptly notifies the other party to that effect, need not pay for the treatments, on the ground of want of consideration for the contract. The court says that the plaintiff was a business corporation organized and created "to establish, maintain and operate an institution in which persons may obtain accommodation for rest, physical exercise, bathing, massage and hygienic treatment." The defendant, being in ill health, was induced to look over the plaintiff's quarters, and finally to remove his clothing. After his heart and lungs had been examined by listening to them, he was arrayed in a rubber coat and given certain calisthenic exercises, which he was informed were characteristic of the treatment which he would receive if he entered into a contract with the plaintiff. Among other things, he was put through a course of setting-up exercises, as they were called. The medicine ball was tossed, and, lying prone on the floor on his back, he was required to work his neck off the floor. After this treatment was completed, and he was given a rub-down with alcohol, he signed what was called an application, which stated that he applied for membership in the institution to include three half hours per week for twenty-two consecutive weeks, and agreed to pay $300 on acceptance of this offer. But the day following he was sore and lame, and a serious trouble developed with his neck, which he attributed to the trial treatment; and he at once notified the plaintiff that he would be unable to continue, or to accept the course of treatment mentioned in the application which he had signed. Moreover, he testified that his condition became so serious that it became necessary to call a physician, who, for several days, treated him for his condition and the serious trouble with his neck; that at the time of the trial he had not recovered, and was then under treatment for the difficulty. The proofs showed that he was physically unable to receive the treatment for which he had applied, and for which he had agreed to pay $300. In short, he agreed to pay $300 on consideration that he receive the treatment and instruction contemplated in the written application which he made. The furnishing of such treatment and instruction was the only consideration for his promise to pay. At the time he made the application he was in no position to know that he would be physically unable to take the treatment. When he found out that he was too weak to receive such treatment, he promptly notified the plaintiff that he would be unable to fulfil his contract. Under such circumstances, the defendant was relieved from liability to pay the plaintiff the contract price, and the judgment in favor of the plaintiff should be reversed, and the complaint dismissed, with costs to the defendant in all courts. All of the members of the court concur in this.

Furthermore, two members of the court think that a complete answer to the plaintiff's claimed right of recovery against the defendant lay in the fact that, under the statute and under the decisions of the New York courts, the plaintiff was, at the time, engaged in the practice of medicine without a license, in violation of Subdivision 7 of Section 160 of the Public Health Law; but the majority, or three members of the court, hold otherwise, being of the opinion that the plaintiff was not engaged in the practice of medicine within the definition and purport of the statute.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Arkansas Medical Society Journal, Little Rock

November, 1919, **16**, No. 6

Surgical Treatment of Prolapse of Uterus. H. H. Kirby, Little Rock.—p. 119.

Pellagra. D. A. Pelton, Forrest City.—p. 121.

Boston Medical and Surgical Journal

Nov. 27, 1919, **181**, No. 22

*Specific Treatment of Typhoid. W. R. Stokes and H. W. Maldeis, Baltimore.—p. 625.

*What Is Influenza? G. A. Soper, Washington, D. C.—p. 635.

*Transposition of Viscera, Tertiary Syphilis. C. G. Lane, Boston.—p. 641.

Specific Treatment of Typhoid.—In thirty-one cases of typhoid treated by Stokes and Maldeis with vaccines the dosage used was 10,000,000 bacteria, usually given subcutaneously, at intervals of several days. The number of doses varied between one and six. No practical results were obtained by this small dosage since the average duration of the disease was thirty days, and patients who even received the first dose on the second, third and fourth days showed no tendency toward a decrease in the duration of the disease. The mortality in these cases was five, or 16.1 per cent. The next set of cases treated numbered about sixty. Doses beginning with 50,000,000 bacteria with an increase to 100,000,000 and 250,000,000 at intervals of several days were used. The duration of the disease was shortened in a fair number of cases and not a few showed actual rapid decline of the temperature to normal after several of the doses had been given. The records in this series were lost, hence exact data cannot be given. In the third series, ten patients were treated by intravenous injections of a sensitized typhoid vaccine made from the Rawling's strain. Immune serum was added to the vaccine until the agglutinins had all been saturated by the immune serum. Of these ten patients, six were treated before the tenth day of the disease. The diagnosis was verified by blood cultures and the Widal reaction. Four patients were treated after the tenth day and showed only a positive Widal test, the blood cultures being negative. In five of the six early cases, two injections were given at intervals of about four days and in three of these cases the disease seemed to be aborted. In two other cases the temperature gradually dropped to normal in about eighteen days and remained so. In the other early case only one injection was given, and the case followed the regular typhoid course. Doses of 300,000,000 bacteria were given and the injection was followed by a slight chill and a rise in temperature of from 1 to 1.5 F., and no dangerous symptoms were noted. In the four late cases the Widal was positive but the blood culture was negative and the vaccine did no harm but no apparent benefit was derived from the treatment.

What Is Influenza?—Soper states the weight of evidence of all kinds indicates that the influenza which was pandemic is a highly virulent form of a disease which is commonly with us.

Transposition of Viscera, Tertiary Syphilis.—Lane reports a case of complete congenital transposition of viscera, functionating perfectly, associated with tertiary syphilis but no history of previous symptoms.

Colorado Medicine, Denver

November, 1919, **16**, No. 11

*Immunity of Coloradoans to Pulmonary Tuberculosis. H. B. Whitney, Denver.—p. 268.

Immunity of Coloradoans to Pulmonary Tuberculosis.—A conviction held by Whitney for many years and expressed emphatically in this paper, that most Coloradoans are practically immune to pulmonary tuberculosis, has been greatly strengthened by his investigation of some statistics. Only a very small percentage of deaths from tuberculosis are said to occur among the native Coloradoans.

Indiana State Medical Ass'n Journal, Fort Wayne

Nov. 15, 1919, **12**, No. 11

*Active Mobilization in Joint Conditions. E. B. Mumford, Indianapolis.—p. 287.
*Meningococcus Cerebrospinal Meningitis. J. A. MacDonald, Indianapolis.—p. 291.
*Blood Sugar Tolerance in Cancer. S. Edwards, Indianapolis.—p. 296.

Active Mobilization in Joint Conditions.—This paper was abstracted in THE JOURNAL, Oct. 18, 1919, p. 1309.

Meningococcus Cerebrospinal Meningitis.—This paper was abstracted in THE JOURNAL, Oct. 25, 1919, p. 1309.

Blood Sugar Tolerance in Cancer.—This paper was abstracted in THE JOURNAL, Nov. 1, 1919, p. 1390.

Journal of Bacteriology, Baltimore

September, 1919, **4**, No. 5

Classification of Colontyphoid Group of Bacteria with Special Reference to their Fermentative Reactions. C. E. A. Winslow, I. J. Kligler and W. Rothberg, New York.—p. 429.
*Bacteriology of Fuso-Spirillary Organism; Its Life History. R. R. Mellon, New York.—p. 505.
*Occurrence of Bacillus Botulinus in Nature. G. S. Burke, Palo Alto, Calif.—p. 541.
Bacillus Botulinus. G. S. Burke, Palo Alto, Calif.—p. 555.

Infection by a Fusospirillary Organism.—Mellon isolated a fusospirillary organism from a case in which it caused generalized infection, involving also the kidney and lung, the point of origin being presumably in the appendix. Its branching filamentous forms relate it closely to the streptothrices, while its bacillary and coccal phases relate it to the lower bacteria. The branching filaments were not cultivated from the renal abscess or the lung puncture, although many of them could be demonstrated from the material in both locations—in fact they constituted the bulk of the flora present in the lung puncture material. They were cultivated from broth blood cultures, however, partly as the result of an irregularity in the preparation of the medium and partly from a radical change in the environmental conditions at a certain stage in the culture's development.

Occurrence of Bacillus Botulinus in Nature.—Two hundred and thirty-five cultures were made by Burke from samples collected in five localities in central California, 50 or more miles distant from each other. The cultures covered a wide range of material, including tap water, hay, leaves, vegetables and fruits in various conditions, insects, spiders, sowbugs, snails and caterpillars, garden soil, manure from horses, hogs, and chickens, and also samples from the claws, beaks, crop, gizzard and intestinal contents of birds. Seven cultures containing *B. botulinus* were found. Burke concludes that *B. botulinus* is widely distributed in nature.

Journal of Industrial Hygiene, New York

November, 1919, **1**, No. 7

Electrostatic Method of Dust Collection as Applied to Sanitary Analysis of Air. J. P. Bill, Cambridge, Mass.—p. 323.
Applications of Psychiatry to Industrial Hygiene. S. Cobb, Cambridge, Mass.—p. 343.
Flatfoot and its Prevention. E. H. Bradford, Boston.—p. 348.
Report on Certain Organs in a Case of Fatal Poisoning by Arseniuretted Hydrogen Gas. S. Delépine, Manchester, England.—p. 356.
Health Hazards and Mortality Statistics of Soft Coal Mining in Illinois and Ohio. E. R. Hayhurst, Columbus, Ohio.—p. 360.

Journal of Mental and Nervous Diseases, Lancaster, Pa.

November, 1919, **50**, No. 5

*Pathology of Human and Experimental Poliomyelitis Based on Cases Occurring in New York City in the 1916 Epidemic. H. S. Howe, New York.—p. 409.
Tumor (Glioblastoma) of Corpus Callosum and Frontal Lobes. C. C. Beling and H. S. Martland, New York.—p. 425.
Tetany in Eunuchoid; Report of Case. H. W. Waltman, Rochester, Minn.—p. 433.

Pathology of Human and Experimental Poliomyelitis.—Three pathologic types of anterior poliomyelitis are recognized by Howe: (1) cases in which the lesions are limited to infiltration of the pia and blood vessels, the mesodermic tissue type; (2) cases in which the main feature is degeneration of the motor cells in the anterior horn, accompanied by the proliferation of neuroglia, the ectodermic type, and (3) the mixed type. In the second group the changes in the central nervous system of man are polymorphous. The reaction in the ganglion cells and nuclei makes it possible to recognize not less than eight different forms in the degenerative process consequent to the poliomyelitis infection. The first group presents the more general reaction of the organism to the infection, manifested by changes in the central nervous system and the lymph tissues of the body. In human poliomyelitis the pathologic reaction to the virus is a mixed one.

Maine Medical Association Journal, Portland

November, 1919, **10**, No. 4

Social Service in Hospitals. R. C. Cabot, Boston.—p. 91.
Teaching of Sex Hygiene. W. T. Rowe, Rumford.—p. 107.

New York Medical Journal

Oct. 11, 1919, **110**, No. 15

Fever and What it Really Means. W. H. Porter, New York.—p. 605.
*Differential Diagnosis of Hyperthyroidism. G. W. McCaskey, Ft. Wayne.—p. 607.
Military Surgery and Medical Officers Reserve Corps. R. T. Frank, New York.—p. 610.
Diabetes Mellitus. T. W. Edgar, New York.—p. 612.
Diabetes Millitus. J. C. Densten, Scranton, Pa.—p. 613.
Treatment of Wounds by Modern Antiseptics. J. C. Seal, New York.—p. 616.

Differential Diagnosis of Hyperthyroidism.—Basal metabolism and alimentary hyperglycemia, with special reference to the differential diagnosis of hyperthyroidism from clinical conditions bearing some resemblance to it, is the subject of McCaskey's paper. Another purpose is to point out the limitations of these laboratory methods, which, however valuable they may be, should always be regarded as subsidiary to the general clinical picture. McCaskey is convinced that the symptoms of hyperthyroidism and hypothyroidism are due to quantitative variations of thyrotoxin in the body cells; that the fundamental phenomenon which dominates the entire clinical picture from cretinism to "Basedowism" is perversion of the metabolic rate; that this metabolic rate has its absolute equivalent, in accordance with fully established physical laws, in the the heat production of the entire mass of body cells; that this heat production is essentially a process of oxidation and is equivalent to the quantity of oxygen consumed, the latter being regulated by, and dependent on, the metabolic rate; that it is now possible with the comparatively simple Benedict portable respiration apparatus to determine clinically the oxygen consumption over a sufficient period of time, say ten to fifteen minutes, with sufficient accuracy for all clinical purposes; that if food metabolism is eliminated by twelve to fifteen hours' starvation (the usual normal condition in the morning), and the metabolism of voluntary muscular effort is eliminated by absolute rest in the recumbent position (one half to one hour is sufficient time), there remains only the energy output—the heat production—the metabolism of the circulatory and respiratory mechanism, with small and probably negligible additions for the phenomena of secretion and the intracellular chemical changes of the cells of the body while at rest, which is called basal metabolism. This so-called basal metabolism is very constant, not only in the same individual but in all individuals when calculated in proportion to the area of body surface, varying in health, in a large majority of people, probably less than 10 per cent. from the average normal rate. Alimentary hyperglycemia following the ingestion of 100 gm. of glucose is present in probably every case of thyrotoxicosis. It is rarely, if ever, present at the end of the first hour in normal persons, although it may have occurred at the end of about thirty minutes. Its presence, therefore, in one hour and especially in two hours always indicates abnormal carbohydrate metabolism unless gastro-intestinal function is delayed. It occurs in latent, and, of course, in manifest diabetes, in alcoholism, malignant disease, arthritis and very probably in a considerable number of infections, acute, subacute or chronic, in the same category with arthritis. While its positive value can only be considered corroborative, it negative value in excluding hyperthyroidism is very great and probably exceeds 90 per cent. In hyperthyroidism there is no con-

stant direct ratio between its intensity and the height of the alimentary hyperglycemia, although, in general, the blood sugar values in severe cases are high. Too much importance should not be attached to alimentary blood sugar values below 140 mg. of sugar in 1,000 c.c. of blood, although sharp lines of demarcation cannot yet be drawn.

New York State Journal of Medicine

October, 1919, **19**, No. 10

*Selection of Operative Methods in Empyema of Thorax. H. Lilienthal, New York.—p. 359.
*Atropin Treatment of Pylorospasm and Pyloric Stenosis. S. V. Haas, New York.—p. 365.
Child Welfare Work in Massachusetts. R. M. Smith, Bosotn.—p. 371.
*Colon Bacillus Pyonephrosis in Early Infancy. Report of Case. F. J. Williams, Albany.—p. 373.
Adenoids, Chronic Conjunctivitis, Photophobia. Case and a Cure. G. D. Scott, New York.—p. 374.
Blood Transfusion. W. W. Birtt, Tonawanda, N. Y.—p. 377.

Operative Methods in Empyema.—This paper was abstracted in The Journal, May 24, 1919, p. 1566.

Atropin in Pylorospasm.—This paper was abstracted in The Journal, May 24, 1919, p. 1567.

Colon Bacillus Pyonephrosis in Early Infancy.—This paper was abstracted in The Journal, May 24, 1919, p. 1566.

Northwest Medicine, Seattle, Wash.

October, 1919, **18**, No. 10

Some Problems Facing Organized Medicine. H. P. Marshall, Spokane.—p. 197.
Thyroid Intoxication. J. M. Blackford, Seattle.—p. 199.
Cerebral Pressure Following Influenza. W. A. Jones, Minneapolis.—p. 201.
Building a Prognosis in Diseases of Nervous System. W. V. Gulick, Seattle.—p. 204.
Pathology of Skull Fractures. E. R. Le Count, Chicago.—p. 205.
Practical Every Day Pediatrics. E. J. Huenekens, Minneapolis.—p. 206.
Epidemic Lethargic Encephalitis (Nona) in Seattle. K. Winslow, Seattle.—p. 209.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, 1919, **24**, No. 6

Elevation of Body Temperature by Diathermy Current. Path of Current in Body. E. P. Cumberbatch.—p. 173.
Place of Radiologist and His Kindred in World of Medicine. F. Hernaman-Johnson.—p. 181.
Three Cases of Injury to Astragalus. W. Dale.—p. 187.
*Satisfactory Injection Medium for Radiography of Fistulae. N. MacLeod.—p. 190.
Experiments on Detection of Pus Soaked Cloth in Animal Tissues. N. MacLeod.—p. 192.
Method of Running a Roentgen Ray Tube on "Earthed" System to Prevent Leakage to Tube Box or Holder. J. A. Shorten, and T. W. Barnard.—p. 196.

Injection Medium for Roentgenography of Fistula.—The injection medium used by MacLeod consists of one part of bismuth oxychlorid and five parts of mucilage of acacia.

British Medical Journal, London

Nov. 15, 1919, **2**, No. 3072

*Cardinal Principles in Cardiologic Practice. T. Lewis.—p. 621.
Frequency, Diagnosis and Treatment of Chronic Pancreatitis. J. H. Nicoll.—p. 625.
*Causation and Treatment of Rickets. E. Pritchard.—p. 627.
Rat Destruction. F. N. White.—p. 629.
*Herpes Zoster of Glossopharyngeal Nerve. C. T. Neve.—p. 630.
*Two Cases of So-Called Gynecomastia in Young Boys. H. Ingleby.—p. 631.

Cardinal Principles in Cardiologic Practice.—Among the cardinal points in the daily examination of chronic affections of the heart Lewis places first and foremost: 1. The symptoms and signs of cardiac failure. These are subdivided into two categories: (*a*) the early evidences of an impaired circulation; (*b*) the signs of cardiac failure of the congestive type. 2. The signs of cardiac enlargement and its degree without attempt to differentiate dilatation and hypertrophy. 3. Signs of valvular disease. 4. The presence or absence of fibrillation of the auricles. 5. Infection. 6. When evidence of disease is found, its etiology is to be taken into consideration. The first three cardinal points are those which command consideration first; the last three assume cardinal importance in cases in which, on the basis of one or more of the first three points disabling heart disease is already diagnosed.

Causation and Treatment of Rickets.—Pritchard maintains that practically all varieties of malnutrition occurring during infancy and early childhood tend to terminate in rickets, provided they are sufficiently severe or long enough continued. They should not, however, be regarded as evidence of rickets unless they are actually accompanied by the typical changes in bone which are characteristic of the disease. The essential and central feature of rickets, Pritchard says, is the want of calcification or mineralization of developing bone, and this, in its turn, is due to the existence of requirements for calcium, which for the time being are more urgent than those of developing bone. These urgent requirements are the necessity for neutralizing acid bodies in the blood; in other words, to neutralize or compensate an existing acidosis. Pritchard argues that all chronic conditions of malnutrition, of whatever kind or from whatsoever cause arising, finally terminate in an acidosis, and all claims on alkaline bases arising in connection with the neutralization of this acidosis must be satisfied before those of developing bone are attended to.

Herpes Zoster of Glossopharyngeal Nerve.—The symptoms presented in Neve's case were: (1) fever and vomiting; (2) facial palsy of peripheral type; (3) an auditory nerve affection; (4) on the mucous surface supplied by the glossopharyngeal nerve an eruption resembling that of herpes zoster; (5) pain felt behind the ear and down the left side of the neck posteriorly.

Gynecomastia in Young Boys.—Ingleby's patients were 7 and 9 years of age, respectively. Only one breast was hypertrophied in each case.

Edinburgh Medical Journal

November, 1919, **23**, No. 5

Influenza in Scotland. (July 1918-April 1919, inclusive.) T. F. Dewar.—p. 303.
Field Ambulance in Gallipoli, Egypt, Palestine and France. J. Young.—p. 309.

Japan Medical World, Tokyo

Oct. 19, 1919, No. 305

Nona or Lethargic Encephalitis in Japan. K. Tanaka.

Oct. 26, 1919, No. 306

Suction Apparatus Especially Designed for Drainage in Surgical Operations. O. Ueda.
*Pathologic Changes in Kidneys due to Intravenous Injection of Alcohol. I. Honda.
Fatty Degeneration of Interstitial Tissues. T. Hattori.
Case of Primary Arthritis Due to Diplococcus Pneumoniae. R. Goto.

Pathologic Changes in Kidneys due to Intravenous Injection of Alcohol.—Honda found that by infusing alcohol into the vein of the rabbit, an acute inflammation of the malpighian bodies develops. By infusing alcohol continuously from time to time, for a considerably long time, the inflammation gradually assumes a chronic nature and at last turns into atrophy. During such process, a passive increase of the connective tissue is observed to take place. No megalocytes have been demonstrated in the malpighian bodies. By the intravenous injection of alcohol, a large quantity of fatty granules was seen deposited in the epithelial cell layer of the malpighian bodies during the early period, but later they were seen to disappear most probably by transportation. By the intravenous injection of alcohol, the deposition of lipoidal substance in the main duct has not been seen to occur during the earlier stage, but later the fatty degeneration has been observed to take place somewhat remarkably.

Nov. 2, 1919, No. 307

Experimental Study of Stimulation of Duramater. M. Kasahara.
*Pyoktanin in Ophthalmology. S. Hori.
Serologic Test of Albuminuria. S. Yamada.
Some Facts which Should be Known in Chromocystoscopics. S. Sugimura.

Pyoktanin in Ophthalmology.—Hori uses an aqueous solution of pyoktanin, from 1 to 5 per cent. strength, in inflammation of the eyelids, conjunctiva cornea and lacrimal glands

Lancet, London

Nov. 15, 1919, **2**, No. 5020

Prognosis in Surgery. D. Power.—p. 861.
*Weil-Felix Reaction in Mild Epidemic of Typhus, Occurring Among Typhus Ridden People. L. E. Napier.—p. 863.
*Weil-Felix Typhus Test. A. Compton.—p. 866.
Case of Osteitis Fibrosa of Femur. E. G. Slesinger.—p. 867.
*Specificity of Agglutinins Produced by Pfeiffer's Bacillus. A. Fleming and F. J. Clemenger.—p. 869.
Rupture of Intestine without External Injury. L. Lindop.—p. 871.
Case of Generalized Tuberculosis. F. J. Natrass.—p. 872.
Bilharziasis in Natal, Treated by Tartar Emetic. F. G. Cawston.—p. 873.
Filaria Loa (Subconjunctival). R. R. James and E. L. Hunt.—p. 874.

Weil-Felix Reaction in Mild Epidemic of Typhus.—Napier is of the opinion that the Weil-Felix reaction will still have to be classed as an aid to diagnosis only. From the fact that a positive result in a dilution of 1:50 is given by 8 per cent. of normal refugees, 25 per cent. of patients with fever other than typhus and typhoid and in nearly every case of typhoid fever, it is obviously unsafe to make a positive diagnosis unless a higher titer than this is obtained. It is very exceptional to get any agglutination in a dilution of 1:100, except in cases of typhus and typhoid; so that, if one can exclude the latter, one can with comparative safety regard a case that gives agglutination in this dilution within the first six days of the disease as one of typhus. However, as in the Widal reaction, the most reliable points in diagnosis are the increasing titer in the early and the decreasing titer in the later stages of the disease. Comparing this reaction in the diagnosis of typhus with the Widal in the diagnosis of typhoid, Napier points out that the former has two distinct advantages: (1) a positive reaction can be obtained at an earlier date; and (2) agglutination occurs in much higher dilutions. Of fifty-nine cases, including eight cases which were classified as doubtful, only twelve failed to cause agglutination in a dilution of 1:1,600, and of these only two were adults who were tested at a period of the disease when one would expect to find a high agglutinating power in the blood —that is to say, between the tenth and twentieth days of the disease. None of the fifty-nine probable typhus cases failed to give agglutination in a dilution of 1:640, and of the seventy-seven control and two probable nontyphus cases, classified as doubtful, not one gave agglutination in a dilution of higher than 1:400, and only one in a dilution as high as this. Thus there is a very sharp line of distinction between the positive and negative results. A disadvantage of the reaction is that in an ordinary severe case by the seventh day, the earliest day on which one can guarantee a definite result, the diagnosis, clinically, is usually beyond doubt. This, however, does not apply in the milder form of the disease, where the diagnosis is often in doubt until about the fifteenth day, when the temperature drops suddenly.

Weil-Felix Typhus Test.—Of fourteen cases of typhus fever tested by Compton, thirteen showed a well marked Weil-Felix reaction; one case gave such a feeble reaction that it might well have passed unperceived and been returned as negative.

Specific Reactions of Pfeiffer's Bacillus.—The results recorded by Fleming and Clemenger show clearly that the various strains of Pfeiffer's bacillus are very different in their agglutination reactions. In most of the cases the agglutinins formed are either quite specific to the particular strain injected, or they are very nearly so, and in every case but one agglutination was observed in a much higher dilution with the homologous strain than with any of the others. The one exception agglutinated one of the heterologous strains to the same titer as the homologous strain, and it agglutinated all the other strains tested to a lesser extent. These results indicate that the *B. influenzae* of Pfeifer is really an associated group of bacteria without the marked unity in immunity reactions seen in other epidemic causing bacteria, such as typhoid and cholera. These facts agree with Park's results and are a strong indication that Pfeiffer's bacillus is not the primary cause of influenza, but that the primary infective agent awakens the activity of organisms which have been leading a more or less saprophytic existence in the respiratory tract.

Sei-I-Kwai Medical Journal, Tokyo

July 10, 1919, **38**, No. 7

*Special Degenerations Produced in Rabbits Immunized with Pancreatic Ferments. H. Wago, Tokio.—p. 31.

Special Degenerations Produced in Rabbits Immunized with Pancreatic Ferments.—A hyaline or an amyloid-like degeneration was produced experimentally by Wago in animals immunized with pancreatin, trypsin and amylopsin. Therefore, he concludes that the occurrence of these degenerations seems to show a relation between the quantity of the antigen given and the duration of the experiments.

Archives des Maladies de l'App. Digestif, Paris

October, 1919, **10**, No. 5

*Giant Gastric Ulcer. A. Mathieu and F. Moutier.—p. 257.
Ulcerative Sigmoiditis with Death from Ulceration of the External Iliac Artery. A. Chalier and C. Dunet.—p. 280.
*Alimentary Anaphylaxis with Asthma. V. Cordier.—p. 287.

Giant Gastric Ulcers.—Moutier reports three cases of gastric ulcer and cites a fourth case in all of which ulceration of the lesser curvature covered an area of 6 by 12 cm.; 8 by 14 or 4 by 15 cm. The patients were men of 48 to 56 and they had had stomach disturbances for from five to ten years, with periods of remission of from six months to two years' duration. These periods of silent latency, the absence of vomiting, and the distaste for meat seem to be characteristic of this type. Hemorrhage was responsible for the fatal outcome in two of the cases, the vicious circle after gastroenterostomy in the third.

Alimentary Anaphylaxis and Asthma.—In Cordier's case the man developed asthma for the first time at 42, following errors in diet. New attacks were brought on experimentally by ingestion of peptone, and he was cured by antianaphylaxis. The asthma returned later after a series of banquets, the attacks menacingly severe, the dyspnea and distress keeping up all day, but there was no nausea or other digestive disturbance. The following day he refused all food and there was no asthma that night. The next day he ate his usual meals and had frightfully severe asthma that night, with a syncopal condition. The connection between the abundant meals and the asthma was determined by various tests, as also the fact that the albumin was the responsible element. The man was then given two rectal injections daily of 10 gm. of peptone, dissolved in milk, with a few drops of laudanum, just before the principal meals. Under these injections he could eat albumin, etc., at will, and for nearly two weeks that this was kept up he was free from asthma. Then, without his knowledge, the peptone was omitted from this injection one day, and that night the asthma returned as severe as ever. The man had thus two ways to ward off asthma, namely, by refraining from animal albumin or by taking the antianaphylactic peptone enemas. The patient finally wearied of these measures, and after repeated errors in diet the antianaphylaxis lost its efficacy. Then autoserotherapy proved successful for a time, 5 c.c. of blood from a vein in the arm being injected subcutaneously. But after a time this also lost its power, and the asthma is now regular, but moderate, every night, even on a meatless diet. Sweats like those of food poisoning are common, as also anguish beyond that from the asthma, and a mild but fetid diarrhea. The asthma in these cases in time passes into ordinary asthma. It is possible that many cases of ordinary asthma began with the alimentary form.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

July, 1919, **8**, No. 7

*Biologic Diagnosis of Pregnancy. Paul Bar and G. Ecalle.—p. 372.
*Welfare Work for Prospective and Nursing Wage-Earning Mothers. H. Keiffer.—p. 401.

Biologic Diagnosis of Pregnancy.—Bar and Ecalle review the bases, the workings and the diagnostic significance of the deviation of complement test, the Abderhalden method, the intradermal reactions, the characteristic changes in the antitryptic power of the serum, and the activating power of cobra venom. Their conclusions are that the clinical benefit from these numerous and difficult researches is very mediocre and out of all proportion to the efforts made. None of the tests

give distinct findings until so late in the pregnancy that no test is required. The reaction to intradermal inoculation of placental peptone was vague and uncertain in the 25 pregnant and 14 nonpregnant women tested, but this method of testing with placental extract—analogous to the skin and intradermal tuberculin tests—they think deserves further study. "The results achieved show how rich will be the harvest for those who continue the work only outlined at present. Then we will understand better the mechanism of the rapid adaptation of the maternal organism to the development of the fetus, the symbiosis of mother and fetus, and the anomalies in this symbiosis, and this example of a physiologic nature will throw light on the mechanism of immunity." The report is based on applications of the tests to nearly 400 pregnant women and over 100 nonpregnant. The findings in the 310 women tested by the Abderhalden method confirm the general assumption that a negative response may be regarded as eliminating a developing pregnancy, but a positive response does not certify to a pregnancy, as this may be obtained under certain other conditions. The response was positive in 33 per cent. of over 100 certainly nongravid women.

Welfare Work for Mothers.—The aim of Keiffer's address, which was delivered at the recent Congress of Gynecologists at Brussels, is to suggest ways and means to lighten the burden of childbearing for working women.

Bulletin de l'Académie de Médecine, Paris

Oct. 21, 1919, **82**, No. 32

Morbidity and Mortality of Children in French Regions Occupied by the Germans. A. Calmette.—p. 198.
Indications with Acute Appendicitis. Bazy.—p. 207.
*Tetanus during 1918. C. Sieur and R. Mercier.—p. 216.
*Prophylaxis of Tuberculosis in Cattle. Moussu.—p. 217.

Tetanus During 1918.—The statistics cited show that even during the worst offensives, the number of cases of tetanus among the troops never surpassed 0.3 per thousand anywhere, in 1918.

Bovine Tuberculosis.—Moussu deplores the practical failure of the means officially adopted to repress the spread of tuberculosis in cattle. In principle they are logical, but in practice they do not answer the purpose, as private interests do not comprehend their import. Better results might be realized if the local breeders would organize and cooperate with the official cattle inspectors to educate and protect the cattle men against loss, and advise them how to improve their stock.

Oct. 28, 1919, **82**, No. 33

Conservation of Vaccine. D'Arsonval and F. Bordas.—p. 225.
*Indications with Acute Appendicitis. Témoin and others.—p. 227.
*Syphilitic Vesicorectal Fistula. P. Peugniez.—p. 241.
Total Hernia of Stomach Through the Diaghragm. Rolland.—p. 243.
*Neuropathic Vomiting. P. Le Noir.—p. 245.

Acute Appendicitis.—This is a continuation of the discussion on whether to operate at once or defer to a quiet interval. All the speakers agreed that acute appendicitis belongs to the surgeon and that he should be summoned at once; not necessarily to operate, but to decide whether and when to operate.

Syphilitic Vesicorectal Fistula.—Peugniez calls attention to the absence of infection of the kidney in his case, although fecal matters had been passing into the bladder for months. The patient was a man of 69, and the surgeons had advised an iliac anus. Endoscopy showed the ulceration in the bladder and its perforation into the rectum, but the tissues around were normal. There was no history of a chancre, but a tumor compressing the stomach had subsided under specific treatment some years before, and under mercury and iodin the fistula between the bladder and rectum healed up completely and promptly.

Neuropathic Vomiting.—Le Noir has found that isolation and psychotherapy are best promoted by keeping the patient constantly in bed and removing everything that could possibly suggest vomiting, even handkerchiefs and newspapers, so that if any vomiting is done, it will have to be on the bedclothes or floor. Restriction to nothing but water the first day also helps. Moist heat is kept permanently on the stomach; and fluid food, and very little of that, is given at first. In case of vomiting of pregnancy, he sometimes succeeded by allowing nothing by the mouth during the day, and giving water by the rectum in the morning, and toward evening an injection of 4.15 gm. each of chloral and potassium bromid. Then a full meal is given, lingering over it until the effect of the sedatives becomes apparent. Then the patient is left quiet in the dark as she drops to sleep. Even if she vomits in the morning, the food by that time has been passed along. With the above measures, isolation need not be so strict, but it must be rigorously enforced with true hysteria.

Bulletin Médical, Paris

Oct. 22, 1919, **33**, No. 46

*Trauma of the Wrist. Jeanne and A. Mouchet.—p. 603.
*Perinephritic Cysts. L. Thévenot.—p. 605.

Trauma of the Wrist.—See Paris Letter, page 1625.

Perinephric Cysts.—See Paris Letter, page 1712.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 17, 1919, **43**, No. 28

Case of Multiple Manifestations of Tertiary Syphilis. R. Le Clerc.—p. 813.
Quinin Prophylaxis of Malaria in Troops. E. Job and L. Hirtzmann.—p. 817.
*Jaundice during Arsphenamin Treatment. G. Milian.—p. 821.
*Control of Arsphenamin Treatment. Sicard, Haguenau and Kudelski.—p. 833.
*Nephritis of Intestinal Origin. Heitz-Boyer.—p. 815.

Jaundice During Arsphenamin Treatment.—Milian insists that arsphenamin has no affinity for the liver, and that the jaundice which may develop under it is referable to the action of the syphilis on the liver. He describes three convincing cases which demonstrate, he says, the nontoxic character of the jaundice, and that pushing the arsphenamin is the only means to conquer the jaundice. It is often rebellious to treatment by the usual technic, but may yield promptly to mercury given by the mouth. He declares that all drugs to act on the liver are more effectual when given by the mouth, as the drug goes straighter to the liver by this route. In the cases reported, the jaundice disappeared when more and larger doses of the arsphenamin were given. He advocates selecting the route as called for by the individual case to reach the points involved; that is, by the vagina, glands, rectum, skin and digestive apparatus, besides the intramuscular, intravenous and arterial routes.

Control of Arsphenamin Treatment.—Sicard and his co-workers give daily intravenous injections of 0.15 gm. of neo-arsphenamin to a total dose of 6 or 7 gm. in women and of 7 or 9 gm. in men, about forty or sixty injections in all. They keep watch for signs of intoxication by the terminal (not the initial) erythema, the absence of the Achilles tendon reflex, the tardy jaundice, the variations in weight and temperature, and chief of all, by the urea content of the blood. They disagree with Milian in regard to the nonaffinity of the drug for the liver, saying that it damages the liver and the amount of this injury is reflected in the urea content of the blood. Another sign that might be instructive is the presence of blood in the stools, as neo-arsphenamin has an erosive tendency on the duodenal mucosa.

Nephritis of Intestinal Origin.—Heitz-Boyer remarks that colon bacillus nephritis has been well studied in children and in the pregnant, but he knows of no comprehensive work on the enterorenal syndrome in adults and the elderly. The suppurating type is the best known. He has had fifty cases of this form; in some the septicemia, in others the cystitis or pyelonephritis dominated the clinical picture. The clinical aspect may be widely variable, but the lack of any precise etiology, and the rebellious and recurring character of the symptoms are characteristic. But the most important criterion is the recovery when treatment is addressed to the intestines and the urinary apparatus is left unmolested. This was particularly striking in elderly women with pendulous abdomen. Local treatment of the bladder and pelvis gave only transient relief, but treatment of the enteritis cured the whole clinical picture. The cases described confirm the blood-borne origin of the nephritis and that the bladder is infected only secondarily. The intestinal pathologic conditions in these cases

vary within a wide range, from chronic constipation of long standing to quite mild enteritis. The bowel symptoms may be slight and fleeting, as in one case in which pyuria with rebellious cystitis for five years healed soon after the intestinal pathologic condition had been cured. Hydronephrosis, lithiasis and ptosis were excluded and an intestinal origin seemed probable to explain the colon bacilli in the urine. Several consultants were unable to detect any bowel disease, but, from lack of other factors, Heitz-Boyer persuaded the woman to follow a strict intestinal regimen. On this the urinary disturbances promptly retrogressed, and there has been no return during the five years to date. It would be interesting to examine the urine for colon bacilli as a routine measure with enteritis. Latent bacilluria might explain a number of puzzling conditions in the urinary apparatus.

Lyon Chirurgical

May-June, 1919, **10**, No. 3

*Atony of the Esophagus. Devic and L. Bouchut.—p. 225.
Thermocauterization of Gastric Ulcer. V. Pauchet.—p. 234.
*Heliotherapy for Cutaneous Tuberculosis. A. Dufourt.—p. 246.
The Leukocyte Formula with War Wounds. M. Petzetakis.—p. 255.
Secondary Suture of Wounds. J. Ducuing.—p. 270.
Magnesium Sulphate in Tetanus. A. Reverdin and A. Beuf.—p. 287.
Indications for Trephining. L. Kojen.—p. 293.
Tests before General Anesthesia. G. Jeanneney.—p. 307.
Toilet of the Abdomen with Perforation. R. Rouvière.—p. 313.
Transfusion of Citrated Blood. R. Rouvière.—p. 321.
Plastic Operations for Loose Joints. L. Bovier.—p. 325.

Atony of the Esophagus.—The necropsy findings showed nothing to explain the dysphagia. It had become installed after a bicycle accident, and the difficulty in swallowing was so great that during the eight months the man of 60 had lost nearly 60 pounds in weight. There was no pain, but he found it almost impossible to swallow, fluids often escaping through the mouth and nose. Nothing to suggest stenosis, spasm or compression could be discovered during life or after death. The whole trouble seemed to be merely atony of the esophagus, no peristaltic movements of any kind being detected. This pseudo-esophagism or dysphagic atony usually allows fluid to run down into the stomach, the reverse of what is observed with spasm. Solid substances are also liable to pass along, but soft, pasty substances are unable to progress. In the case reported, all the types of food seemed to find equal difficulty in reaching the stomach; there was probably some paralysis of the pharynx which aggravated the disturbances. Roentgenoscopy and exploratory catheterization readily differentiate this type of dysphagia, the contrast suspension forming a narrow, continuous band the length of the esophagus.

Heliotherapy of Cutaneous Tuberculosis.—Dufourt has given systematic sun baths in fifty cases of cheesy tuberculids and has been much gratified with the benefit therefrom. He first opens and removes the cheesy matter before applying the heliotherapy, saying that surgical aid is indispensable to render the heliotherapy effectual. The sun will heal the living tissues, but dead tissues have to be got out of the way before it can accomplish its task. With lupus the rays have to be concentrated with a lens adapted to keep out the ultraviolet rays, and the lupus tissues have to be compressed to force out the blood which would otherwise absorb too much of the healing rays. Eight or twelve months or longer have to be devoted to the treatment of lupus, as a rule, but there are exceptions to this. In one case lupus which had destroyed the nostrils and part of the upper lip and extended out on the cheeks, healed completely under five months of fifteen minutes insolation daily. He tries to avoid strong reactions, as they seem to do more harm than good, and he reiterates that heliotherapy can be applied anywhere, even in the big cities. He adds that if a suspicious lesion improves under heliotherapy, this is good testimony to its tuberculous nature. "If it proves refractory, hunt for some other cause." Syphilitic lesions do not heal under heliotherapy; at least that has been his experience.

Lyon Médical

October, 1919, **128**, No. 10

Influenza and Tuberculosis. C. Roubier.—p. 485. Cont'n.

Médecine, Paris

October, 1919, **1**, No. 1. General Surgery Number

French Surgery, 1914-1918. P. Mathieu.—p. 5.
Surgical Treatment of Gastric and Duodenal Ulcer. P. Lecène.—p. 9.
*Pseudarthrosis. C. Dujarier.—p. 14.
The Sympathetic Network in Pathology of Limbs. R. Leriche.—p. 17.
Chronic Colitis. G. Lardennois.—p. 21.
*Surgical Treatment of Acute Rebellious Dysenterics. G. Cotte.—p. 22.
*Cancer of the Colon. J. Okinczyc.—p. 24.
*Cancer of the Rectum. H. Mondor.—p. 28.
Pleural Fistulas and Cavities. Roux-Berger.—p. 30.
Tumors of the Bladder. E. Papin.—p. 33.
Reconstruction of the Face. L. Dufourmentel.—p. 36.
*Use of Ether in Infections. C. Souligoux.—p. 40.
Sclerogenous Injections in Tuberculous Lesions. M. Haller.—p. 41.
Early Diagnosis of Cancer of the Uterus. G. Massabuau.—p. 42.
Early Diagnosis of Renal Tuberculosis. E. Papin.—p. 45.

"La Médecine."—As will be seen by the numbering of the pages, this new magazine aims to give a number of short articles on vital questions of the day, written by men who are contributing most to settling these questions. There are no illustrations, and each of the monthly numbers is to be devoted to some one branch of medicine—surgery this time. A brief summary in English and in Spanish follows each article.

Pseudarthrosis.—Dujarier remarks that the pseudarthrosis of peace is usually simple, and the cause is the interposition of some fibrous or muscular tissue. After removal of this, the fragments should be freshened economically, generally by scraping, and then after reduction and coaptation the parts should be held in place with a wire tied around at different points. Where this *cerclage* is not practicable, a plate should be screwed on or the parts held with clips. If the pseudarthrosis is accompanied by loss of substance requiring a graft, it is better to wait until the fistula has healed. But this is not indispensable. He has operated in a suppurating focus with complete success in a number of cases, paying great attention to ample draining. He now has a total record of 140 cases of pseudarthrosis.

Acute Rebellious Dysentery.—Cotte advocates appendicostomy early, not merely as a last resort, and expatiates on its advantages for flushing out and disinfecting the lower bowel, preferably with a 1 per thousand solution of silver nitrate, once or twice a day. This brought rapid improvement in his cases, refractory to the ordinary measures.

Cancer of the Colon.—The main point in treatment is an early diagnosis, and Okinczyc pleads for an exploratory operation when a man or woman over 45 has constipation or it becomes aggravated, with frequent digestive disturbances, and blood in the stools, and these minor symptoms persist. To wait for occlusion is a fatal error. He discusses the technic, advocating colectomy at one sitting, with end-to-end suture, reenforced with omentum.

Cancer of the Rectum.—Mondor regards irregularity in the stools in a person over 45 as a revealing sign of cancer of the rectum. If the physician heeds it, and makes a digital examination of the rectum, it may save him the humiliation of treating the patient for months on the mistaken assumption of dyspepsia, sciatica, hemorrhoids or chronic appendicitis, when an early operation might have cured him of his malignant disease. Digital examination will confirm the diagnosis almost certainly, and reveal the involvement of the retrorectal glands. To ensure removal of all diseased tissues, the operation has to be by both the abdominal and the perineal routes.

Ether in Infections.—Souligoux pours 200 or 250 gm. of ether into the abdominal cavity in case of infection of the peritoneum, after the pus has been evacuated. The ether is then wiped out again, aided by its evaporation, until none is left, and the cavity is drained. He uses ether to sponge out other cavities, after appendicectomy, gynecologic operations, etc., and ascribes to the ether a number of recoveries in otherwise hopeless cases.

Paris Médical

Oct. 25, 1919, **9**, No. 43

War Sequelae and Life Insurance. P. Lereboullet.—p. 317.
*Disturbances in Speech with Cerebellar Disease. G. Milian and E. Schulmann.—p. 321.
Diagnosis of Incipient Syphilis. E. Bodin.—p. 327.
Epidemic of Bacillary Dysentery. G. Rosenthal.—p. 328.

Cerebellar Dysarthria.—Milian suggests that treatment as for syphilis and training in speech might improve conditions in some cases. Two are described in detail with no improvement to date of the cerebellar set of symptoms.

Progrès Médical, Paris

Oct. 4, 1919, **34**, No. 40

*Physiology of the Omentum. A. Aimes.—p. 393.
Diagnosis of Pulmonary Tuberculosis in Adults. E. Sergent.—p. 396.
Three Typical Cases of Onirism. Laignel-Lavastine.—p. 398.
Case of Empyema of the Hilum. L. Morean.—p. 400.
Tardy Symptoms of War Nephritis. L. Giroux.—p. 400.

Physiology of the Greater Omentum.—Aimes reviews in turn the four main properties of the greater omentum, its sweeping out properties, thanks to its movability; the phagocyte defense it can call into play, and its antitoxic and its plastic rôles. He says, "The omentum changes its position with a sort of intelligence, like the chemiotaxis of the leukocytes. It is important therefore to refrain as much as possible from resecting the omentum; also in case of peritonitis to promote the bactericidal action and the agglutinating secretion by local heat and sodium nucleinate, or by subcutaneous injection of 2 per cent. nucleinic acid (Mikulicz) or by injection into the abdominal cavity of saline. . . . Another point to be borne in mind is to refrain from hindering its active movements, and hence one should be chary of morphin. . . . The abundant vascularization makes particularly important all measures to ward off hemorrhage." He advises firm ligatures in series when the omentum has to be incised, and urges utilizing to the full the protecting and plastic properties of the omentum to reconstruct and reenforce passages and cavities. Lanz has even used the omentum to patch the mesentery.

Revue Médicale de la Suisse Romande, Geneva

September, 1919, **39**, No. 9

*Trauma of Thorax and Tuberculosis. Tecon.—p. 409. Conc'n.
*Curetting with Cancer of the Uterus. R. Gonin.—p. 421.
*Radical Treatment of Frontal Sinusitis. P. Terrier.—p. 442.
*Tardy Tetanus. A. Lienhard.—p. 453.

Trauma of the Chest and Pulmonary Tuberculosis.—Tecon reports that contusion of the chest was followed by the development of pulmonary tuberculosis in 60 per cent. of his 15 cases. He also found 3 cases with a history of contusion of the chest among 1,033 tuberculous inmates of the Leysin sanatoriums. Sergent and Mantoux found only 9 and 5 per cent. with pulmonary tuberculosis after contusion of the chest, while Tecon's proportion is 42 per cent.; this latter figure shows the depressing influence of the imprisonment and internment. He was able to find only 0.38 per cent. with a history of exposure to war gases among the 1,033 tuberculous interned. He urges that men wounded in the thorax should be kept under surveillance as this may clear up a number of still obscure points. In the 42 cases of trauma of the chest which he has been studying, only 14 developed pulmonary tuberculosis later, and only in 8 is the direct connection with the trauma beyond question. Shell and projectile wounds are far less liable to this evolution than contusions as was mentioned in the summary on page 1398 of the first instalment of his article.

Negative Scrapings with Uterine Cancer.—Gonin reiterates that clinical symptoms indicating cancer should be the guide to operative treatment, regardless of possibly negative findings with the curet. It very rarely happens that the clinical and the curet findings are contradictory. This is liable, however, when the cancer does not show on the surface. The discovery of papillomatous lesions should strongly suggest epithelioma. In one woman of 53 the scrapings were negative, but for a year there had been an occasional show of blood, especially once a month, when there were sensations recalling those of menstruation. A polyp protruded from the uterine cervix, and a viscid, pinkish, transparent fluid oozed from it. The papillomatous polyp was removed but the scrapings still were negative, although the slight bleeding kept up, with finally colic pains in the uterus. Vaginal hysterectomy was finally permitted. This disclosed an adenocarcinoma in the wall of the uterus although the mucosa seemed normal throughout, except for one small patch not quite so smooth as the rest. In a second case a woman of 35 noted that the menstrual discharge was growing progressively more profuse and that there was a pinkish discharge during the intervals. She had borne six children. Not a trace of malignant disease could be detected with the curet, and the presumptive diagnosis was fibrous degeneration of the mucosa. The patient made several trips to health resorts but there was no improvement during the year. Then she expelled two small tumors, one a polyp with a large clot of black blood, including formations resembling chorionic villi. This was accepted as indicating that there had been a pregnancy. But the persistence of pain was too suspicious of malignant disease, and subtotal hysterectomy disclosed a spindle-cell sarcoma. The scrapings in both these cases had never shown anything suggesting malignant disease, the mucosa being practically normal throughout, but the papillomatous polyp in one case and the pseudodecidual tissue expelled in the other warned of possible malignant disease. Both of the women are in good health to date, two years since the operation.

Dangers of Radical Treatment of Frontal Sinusitis.—Terrier regards frontal sinusitis as a more serious condition than disease in the antrum of Highmore. Fatal complications occur so often that the surgeons' zeal to operate has moderated. But a radical operation is the only means of salvation in many cases. Opening up the sinus may precipitate the evolution of postoperative complications, some latent focus being roused thereby to activity. Phlegmon of the upper lid or brow is the consequence of defective drainage or asepsis. It may reinfect the sinus, and entail meningitis or cerebral abscess. The variability in the size and shape of the sinus is an important factor in the outcome, the large cavities having usually thin walls, and dehiscence is frequent. Recesses and crevices may escape complete disinfection, and pus may collect in them, and sequesters form—this is always menacing for the intracranial organs. The ethmoidal cells should also be scrupulously investigated. The symptoms of a new infection may take some time to develop, so the surveillance after an operation should not be abandoned too early. He quotes Boenninghaus' statement that he knows of 26 cases of death after the Killian operation alone; meningitis was responsible for the fatality in 20 of them. Whether the technic or the gravity of the condition is responsible, this high mortality is impressive; the temperature suggests involvement of the meninges even before the operation. An incomplete operation has been the cause of many disasters; the operation itself seems to enhance the virulence of germs that escape disinfection. An abscess in the frontal lobe can generally be regarded as an extension of the sinusitis. If the olfactive zone is involved, the infection spreads by the lymphatics. He describes a personal case in which old pansinusitis in a man of 48 with pyocele in the left frontal sinus had entailed considerable destruction of bone. Death occurred from purulent meningitis the third day after an operation on the pyocele. No opening into the brain from any sinus was discovered.

Tardy Tetanus.—The man of 34 had a small erosion on the left wrist from an automobile accident, with contusion of the shoulder and slight contusion of the brain. Antitetanus serum was injected (10 c.c.) and the man returned to work the fourth day. Thirteen days later tetanus developed but the man recovered under serotherapy, a total of 293.5 c.c. of the antiserum in seventeen days. Phenomena of anaphylaxis hampered the treatment materially, but were finally overcome by diluting the antiserum. The 293.5 c.c. of the antiserum thus represented 490 c.c. of fluid. The injections were made subcutaneously except one of 10 c.c. by the vein which was followed by rigors, and the man felt that he was dying.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Oct. 23, 1919, **49**, No. 43

*Histochemistry of Fats. H. H. Escher.—p. 1609.
*Lactic Acid in the Stomach. A. Rodella.—p. 1623.
Silver Salts in Influenza. H. Koller.—p. 1633.
Syphilis without Primary Lesion. A. Nordmann.—p. 1640.

Differentiation of Fats by Histochemistry.—Escher gives a colored plate which shows the color reaction of a large number of different fats to the same stains. Research in this line affords a basis for greater precision in estimating and classifying fats and lipoids. The color reactions are characteristic and specific for different groups of fats. He declares that the varying affinity for stains has not been utilized to the full to date in studying animal and plant tissues. We may yet be able to distinguish different but seemingly identical substances by the optic changes, just as the mineralogist distinguishes them with his optic methods in the mosaic of stone dust.

The Hard Boiled Egg Test Breakfast.—In this fourth account of research on lactic acid in the stomach, Rodella emphasizes the instructive findings when the test breakfast consists of a hard boiled egg (without the yolk) and 400 gm. tea. This ensures that the test breakfast is free from bacteria, while it contains a fermentable substance to which the stomach is accustomed, and the amount of penetration of bacteria into this substance allows an estimate of the bacterial action going on in the stomach not only by fermentation but by microscopic examination. He gives the details of ten cases of various gastric pathologic conditions to illustrate the information derived with this test breakfast, not attainable in any other way. The rolls, etc., of the ordinary test meals are liable to contain many bacteria. The Sahli meal does not inform in regard to fermentation processes or allow differentiation of the fermentation bacteria—all of which is possible with the hard boiled egg meal, he says. With this he has ascertained that with nervous dyspepsia free from catarrhal complications the recovered egg white never contains any micro-organisms. The larger numbers and the most species are found with chronic gastric catarrh with much retention, and with incipient cancer. He adds that just as the presence of lactic acid in the stomach has proved sometimes an unreliable guide in respect to gastric cancer, the white-of-egg test breakfast may prove unreliable in certain cases. But on the whole, he reiterates, it seems destined to prove a valuable addition to our diagnostic measures, especially in combination with Uffelmann's ferric chlorid reaction.

Policlinico, Rome

Aug. 31, 1919, **26**, No. 35

*Contusion of Pancreatic Cyst. G. Ruggi.—p. 1033.
*Meat from Animals with Foot-and-Mouth Disease. I. di Pace.—p. 1039.

Hematoma in Pancreas Cyst.—Ruggi's patient was a girl of 9 who had bumped into the corner of the table; pains in the left gastrocolic region kept recurring, with vomiting. The operation confirmed the assumption of a hematoma in an old retroperitoneal cyst in the pancreas. He fastened the walls of the cyst to the lips of the transverse incision, 15 cm. long, in the abdominal wall, after suturing a tear in the peritoneum. Healing was complete in a little over two months.

Is Foot-and-Mouth Disease Transmissible to Man?—Di Pace cites evidence from various countries to show that the aphthous fever of cattle can be transmitted to man, but that contagion occurs comparatively rarely. Milk from infected animals is the source of the greatest danger. A trace of fluid from one of the vesicles is enough to contaminate a large amount of milk; one cow with the disease can infect the milk from the whole dairy. But there is no evidence, he says, that the virus invades the muscle tissue, and there need be no fear of harm, he reiterates, in eating the meat provided the animal is slaughtered and eviscerated at once and the meat is well cooked. Unless these two conditions can be fulfilled, the meat should not be used, as toxins resistant to heat may spread to the muscle tissue under other conditions. He quotes Prof. Mazzine to the effect that the soldiers in the Turin district have been fed on meat from cattle with epizootic aphthae, and that he used it in his own family without the slightest disturbance therefrom.

August, 1919, **26**, Medical Section No. 8

*Paralysis of Peripheral Nerves after War Wounds. G. Mingazzini and G. Fumarola.—p. 289. Conc'n.
*Nervous Lesions from Influenza. G. Tanfani.—p. 321.

Dissociated Paralysis of Peripheral Nerves After War Wounds.—This is the concluding instalment of Mingazzini and Fumarola's extensive experimental and clinical study of dissociated paralysis of various peripheral nerves. Their findings do not confirm the assumption of a distinct internal topography of the fibers of a peripheral nerve.

Nervous Lesions from Influenza.—Tanfani reports three cases of unilateral postinfluenzal neuritis, and four with cerebral hemiplegia evidently of hemorrhagic origin.

Riforma Medica, Naples

Oct. 11, 1919, **35**, No. 41

*Influenza. Amilcare Bertolini.—p. 869.
*Palpation with Superposed Hands. G. Boeri.—p. 874.
*Cervical Ribs. Tullio Meucci.—p. 876.
Vitamins and Oxymones. A. Azzi.—p. 878.
Surgery of the Lungs. E. Aievoli.—p. 879.

Influenza.—Bertolini discusses the literature on the effect of influenza on the circulatory, digestive and urogenital organs.

Superposed-Hands Palpation of the Abdomen.—Boeri extols the advantages for palpation of the abdomen when the left hand is used for the palpation, as if it were the palpating instrument, while the right hand, superposed on the other, applies the force. The fingers of the left hand applied flat only have to register the sensations experienced from the palpation, the fingers of the other hand, applied slanting on the lower hand, doing the pushing into the depths for the palpation. The mental work of appreciation of the findings and the muscular work are thus thrown on separate hemispheres of the brain, and greater precision is attained. He compares this with the common observation that persons seated at a lecture or play listen and understand better than those who stand throughout. This *palpazione mediata* is indicated when the abdomen is extra large, or distended, or the walls contracted, or when it is desired to palpate deep-lying organs.

Cervical Ribs.—Meucci adds another to the thirty-five operative cases of cervical ribs he has found on record. The young woman had noticed for four winters various nervous disturbances in one arm, formication, prickling, weakness, etc., but these disturbances subsided during the warm weather. They returned in a graver form each winter, until the entire arm and shoulder were weak, and any pressure caused pain. No benefit was obtained from tonics, massage and electricity, and palpation finally revealed a cervical rib. It was resected through an incision along the trapezius.

Brazil-Medico, Rio de Janeiro

Sept. 13, 1919, **33**, No. 37

*Color Test for Leukemia. J. A. G. Fróes.—p. 289.

Sept. 20, 1919, **33**, No. 38

*Enterocolitis in the Newly Born. C. de Rezende.—p. 297.

Diagnosis of Leukemia.—Fróes stains the blood specimen with a stain composed of 1 gm. methylene blue in 90 gm. distilled water and 10 gm. alcohol, with 0.5 c.c. of hydrochloric acid. The acid destroys the hemoglobin of the erythrocytes while the blue stains the nuclei of the leukocytes. As the leukocytes are in such abnormal numbers, there are so many nuclei to take the stain, that the blood specimen is decidedly blue instead of the greenish brown with normal blood.

Enterocolitis from Inherited Syphilis.—De Rezende refers to the colics presented by newly born infants, describing a typical case in which the child screamed with pain after nursing, until it was about 2 months old, when it gradually seemed to throw off this tendency. None of the ordinary measures had been of the slightest avail, and the retrospective diagnosis was inherited syphilis. Similar experiences since in fourteen years of practice have confirmed this view that whenever a newly born infant, suckled by its own mother, presents intestinal derangement characterized by frequent stools with greenish mucus, with or without blood admixture and tenesmus, inherited syphilis should be suspected. Usually the diarrhea appears immediately after birth. It is not abundant, but every diaper is soiled. The

screaming day and night and restlessness should suggest inherited syphilis even without other symptoms. The diarrhea is apt to mislead one to treat the digestion as the factor at fault, and overlook the causal inherited taint. De Rezende comments on the scant reference to this in pediatric literature, citing Holt's statement that inherited syphilis does not cause important lesions in stomach or bowels. Bendix refers only casually to intestinal syphilis in infants, saying it is rare and the resulting diarrhea is speedily fatal. But de Rezende has found that under specific treatment the child usually recovers clinical health.

Gaceta Médica de México, Mexico

September, 1919, **1**, No. 3

*The Hyperglobulia of Altitude. F. Ocaranza.—p. 157.
*Spastic Stenosis of Esophagus. P. P. Peredo.—p. 170.
*Pneumobacillus Septicemia. J. G. Cosío.—p. 179.
Convalescents' Serum in Treatment of Typhus. J. de Jesús González and R. Lozano.—p. 184.
Inefficacy of Colloidal Quinin in Malaria. G. Escalona.—p. 194.
Drainage of Pleural Effusions. J. Ramón Icaza.—p. 196.
Cancer or Syphiloma. R. E. Manuell.—p. 200.
Exaggerated Fear of Sympathetic Ophthalmia. J. Santos Fernández.—p. 204.
Present Status of Our Knowledge of Streptococci. E. Cervera.—p. 208.

The Blood Changes in High Altitudes.—Ocaranza discusses the increased production of blood corpuscles in persons living on the high tableland of central Mexico, and reviews the literature on the subject.

Esophagoscopy with Stenosis.—Peredo expatiates on the advantages of esophagoscopy; it has shown that spastic stenosis of the esophagus is more common than formerly supposed. A spasmodic element may complicate all forms of stenosis but the constricting spasm may be of exclusively nervous origin. In a case described, insidious stenosis of the cardia entailed great dilation of the esophagus above. To save the woman from starving to death, an emergency gastrostomy was done. The painful contractions in the cardia and esophagus and the fetid vomiting continued, and the negative findings with esophagoscopy confirmed the neuropathic origin. Clinically normal conditions were soon restored by progressive dilation with sounds. Similar success was realized in two other cases rapidly cured by instrumental progressive dilation after esophagoscopy had excluded organic stenosis. In the discussion that followed, several reported typical cases of spastic stenosis. In some the spasm occurred electively with certain foods or with very hot or very cold fluids. In one hysteric woman the spasm occurred in the esophagus whenever the uterine cervix was irritated. The spasm developed along with catalepsy, and amputation of the cervix seemed to cure the tendency to both.

Pneumobacillus Septicemia.—Cosío says that the case in a young woman which he reports, and Chirie's case, are the only ones with recovery among the twenty-eight cases of Friedländer pneumobacillus hemorrhagic septicemia on record to date.

Reforma Médica, Lima

August, 1919, **5**, No. 60

Influenza and Lethargic Encephalitis at Lima. C. Monge M.—p. 91.

September, 1919, **5**, No. 61

The New Crusades: General Gorgas at Lima. C. E. Paz Soldán.—p. 103.
Tropical Dysentery in Spain. F. Fernández Martínez.—p. 109. Begun in No. 60, p. 93.

Revista Médica del Uruguay, Montevideo

March, 1919, **22**, No. 3

*Congenital Obstruction of Posterior Nares. J. M. Alonso and E. Regules, Jr.—p. 201.
*Angina Pectoris. P. Escuder Núñez.—p. 204.
*False Acute Articular Rheumatism. L. Morquio.—p. 212.
Symphysiotomy; Three Cases. J. Pou Arñla.—p. 231.
Early Diagnosis of Pregnancy. Augusto Turenne.—p. 253.

Congenital Obstruction of the Posterior Nares.—Alonso and Regules operated on a young woman who had never been able to breathe through the right side of her nose. At the first sitting they resected part of the inferior turbinate to obtain better access, and five days later cut away the obstructing wall of bone under local anesthesia. The dread and extreme indocility of the patient and the hardness of the bone rendered the operation very difficult and there was severe hemorrhage. The hemorrhage on the side of the operation was arrested, but was followed by hemorrhage on the other side. The hemorrhages returned four days later when the tampons were removed, compelling tamponing again. There was a right mastoid reaction and suppuration in both ears, but this yielded to the ordinary measures, and the nose is now normally permeable for air on both sides. It had been the intention to make the new opening a little wider, but this had to be abandoned on account of the hemorrhages.

Angina Pectoris.—Escuder Núñez describes six cases of angina pectoris to show the variety of causes which may induce it, including aortic insufficiency, aortitis, overexertion of the heart and abnormally high blood pressure of cardiorenal origin. Necropsy in one of the cases failed to show the slightest pathologic changes in the coronary arteries. Necropsy has often, besides, shown the coronaries extremely pathologic without any symptoms of angina pectoris during life. Treatment should be individualized to fit the cause. In some cases the aim should be to act on the peripheral vasodilators. But in every case the rule should be to provide for hygiene in the diet, for the kidneys, and for the digestive tract, and suppress tobacco, alcohol and other poisons.

Semana Médica, Buenos Aires

Aug. 14, 1919, **26**, No. 33

*The Physician and His Duty to Society. G. Aráoz Alfaro.—p. 163.
Neuro-Epithelioma of the Eye in Boy of Five. E. B. Demaria.—p. 173.
Massage of the Heart for Arrested Heart Action under Anesthetics. M. J. Petty.—p. 175.
Serotherapy of Tuberculosis. F. Jauregui and N. Lettieri.—p. 177.

The Physician and His Duties to Society.—This address by Aráoz Alfaro at the commencement exercises of the medical school has been widely copied. In conclusion he remarked that if any of the recent graduates did not feel inspired by love for humanity and sympathy for the pain of others, and did not feel capable of self-abnegation and sacrifice, he urged them to withdraw from the ranks of the profession and seek other spheres of activity more propitious for an easy, prosperous life. "The joys of the practice of medicine are moral ones. It is superior to other careers by the high spirit of sacrifice which inspires it. Without altruism, without love for mankind, it will be a dreary burden to carry. Any other profession or livelihood would be preferable to it in this case." He gave a few aphorisms, the last one warning to distrust already published opinions. "Try to correct them or verify them. . . ." He advised the graduates to go into politics—"Not petty local politics, or subservience to men in office, but the politics of educational progress, of economic and social reforms, movements for hygiene and public health, the politics of institutional truth and wise prevision, which will carry the country far on the road of progress."

Hygiea, Stockholm

Aug. 31, 1919, **81**, No. 16

*Tests of Functional Capacity of the Liver. George Kinberg.—p. 689.

Tests of the Functional Capacity of the Liver.—Kinberg reviews the literature and reports the results of much personal research on the elimination of amino-acids and ammonia in health and with a diseased liver. He tested the functional capacity further by ingestion of gelatin, instead of glycocoll which has been recommended for the purpose. After a constant test diet with low nitrogen content for several days, 50 gm. of gelatin dissolved in hot chocolate was taken fasting. The metabolic findings are tabulated from fourteen cases and six healthy subjects. He did not find any increase in the output of amino-acids with liver disease except after the gelatin test. Then the output increased with serious pathologic conditions in the liver, as with cirrhosis, but not with mere catarrhal jaundice or congestion in the liver, and not in health. The output of ammonia was almost always found higher with liver disease than in health, both absolutely and relatively.